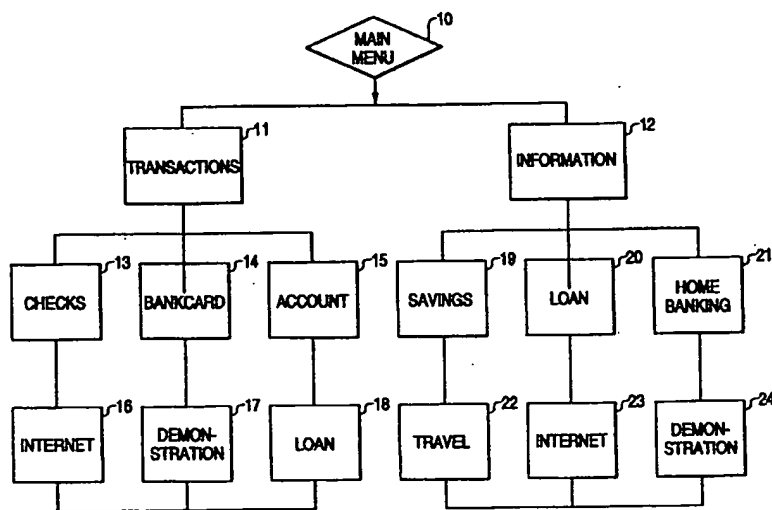




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(54) Title: PERSONAL BANKING MACHINE



## (57) Abstract

A method and system (2) for performing banking transaction and obtaining information about banking products and services. The system (2) includes features for performing banking transactions. The transaction functions include services such as applying for and receiving checks (13), bankcards (14), opening accounts (15), applying for loans (20), and accessing the Internet (23). The system (2) also includes information functions which permit the user to gain information on savings accounts (19), loans (20), home banking (21) travel related services (22), and retrieve information from the Internet. The system (2) also provides a demonstration (24) of the various bank products and services. The system (2) allows these functions to be performed by customers and non-customers in a 24-hour or extended operating hours environment without the need for interaction with or assistance from a customer service representative or local bank staff member.

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**PERSONAL BANKING MACHINE****FIELD OF THE INVENTION**

5           The present invention relates generally banking methods and systems for  
bank customers and non-customers to perform financial transactions and acquire  
information regarding banking products and services. The present invention allows  
a user to establish a new banking relationship. The invention includes features for  
performing and completing bank transactions such as, obtaining checks, bankcards,  
10   and account information, as well as establishing new accounts. Other aspects of the  
invention enable users to acquire information regarding banking products and  
services, as well as information from the Internet, anywhere, anytime without the  
aid of a traditional banking customer service representative being locally present.

15   **BACKGROUND OF INVENTION**

          There is an increasing consumer need for banks to deliver 24 hours a day, 7  
days a week full service at the branch office level. Presently, the self-service  
banking products and services which are offered at the local level are limited to such  
simple functions as withdrawals, deposits and the delivery of account statements. It  
20   has not been possible for bank customers to obtain increasingly complex  
information, and perform those associated transactions, which have become the  
substance of such information, without directly being assisted by a local office staff  
member during normal business day operating hours.

          In order to fulfill this need, banks are seeking to transform portions of the  
25   traditional branch office into a "personal space" in which both customer and  
customer representatives are better equipped to meet the customers' increasingly  
complex financial needs. This transformation will result in the integration of  
information-based banking into a retail space which today is devoted almost  
exclusively to routine transaction-based banking.

30           The future bank will enable customers to be more in control of their financial  
well-being, a cornerstone of any financial institution's goal of providing full-fledged  
money management for all of its customers. This objective is supported by the

introduction of advanced technologies into the branch setting, such as access to the Internet, self service account functions, home banking, global products and services. This technology allows customers and non-customers access to information and transactions which provides a true market differentiation in retail banking.

5           Finally, the activities customers are beginning to perform at the local branch level are qualitatively different from those done previously. Despite the growing popularity of remote access channels among consumers, it is clear that financial institution's worldwide branches will continue to be a vital presence to bank customers and non-customers for the foreseeable future. Accordingly, there is a  
10       need to engage and interact with millions of customers worldwide, while efficiently delivering superior products and services to in-branch customers and non-customers.

#### **SUMMARY OF THE INVENTION**

Three primary needs of a bank are fulfilled with the Personal Banking  
15       Machine (PBM); 1) to service customers and non-customers in 24 hour or extended operating hours environment without the need for interaction or assistance with a customer service representative or local bank staff member, including the enrollment of a non-customer in a banking relationship, 2) to provide customers and non-  
customers with banking product and service information, and 3) to provide  
20       customers with the ability to perform banking transactions.

The PBM also facilitates an increase in the volume of customers and potential customers. They will be attracted by this new and convenient means of accessing information and products. Since the local branch office staff will be primarily focused on assisting customers, it is a very important aspect of the PBM  
25       that it's self service functionality be available for information and transactions that currently require a personal banker or a bank teller.

It is an object of the present invention to meet the needs of bank customers and non-customers by allowing 24 hour access to both information and transactions at the local branch level. It is a further object of the present invention to provide a  
30       user who is a non-customer with the ability to establish a banking relationship through the access to and operation of the PBM.

It is an object of the present invention to provide the user with information on a bank's savings accounts, loans, and home banking services, related travel services. Internet-based information is also accessible. A demonstration of the various bank products and services is also provided by the present invention.

5 It is an object of the invention to allow users who are bank customers to perform banking transactions such as obtaining checks, bankcards, open and alter bank accounts. In addition, the invention allows the user to perform Internet-based banking transactions.

10 It is an object of this invention to provide such information and allow such transactions to be performed without requiring a customer service representative during either peak or off-peak hours.

To achieve the stated and other objects of the present invention, as embodied and described below, the invention includes a method for a user to obtain financial information and perform banking transactions, by allowing the user to access the  
15 PBM by a user interface that automatically prompts the user to enter user identification data. After the user inputs such identification data the interface transmits the data a remote processing unit having a database, wherein the data is verified and it is automatically determined if the user is an existing account holder or non-customer. The remote processing unit then transmits database information to  
20 the user interface, upon which a function menu is displayed and selected by the user. The user interface then prompts the user to input data for the selected function which is then performed by the PBM.

Additional objects, advantages and novel features of the invention will be set forth in part in the description that follows, and in part will become more apparent  
25 to those skilled in the art upon examination of the following or upon learning by practice of the invention.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings:

30 FIG. 1 presents a general view of the PBM workstation for an embodiment of the invention;

FIG. 2 illustrates the PBM from a right-of-center viewpoint for an embodiment of the invention;

FIG. 3 is a block diagram of the tool function groups for an embodiment of the invention;

5        FIG. 4 is a block diagram of the transaction tool functions for an embodiment of the invention;

FIG. 5 is a flowchart of the process steps for a user to access the PBM with a bankcard for an embodiment of the invention;

10       FIG. 6 is a flowchart of the process steps for a user to access the PBM thru the touch screen for an embodiment of the invention;

FIG. 7 is a flowchart of the process steps for a user to access the PBM with a bankcard issued by another banking institution for an embodiment of the invention;

15       FIG. 8 is a flowchart of the process steps for opening an account for an embodiment of the invention;

FIG. 9 is a flowchart of the process steps for obtaining checks from the PBM for an embodiment of the invention;

FIG. 10 is a flowchart of the process steps for obtaining a bankcard from the PBM for an embodiment of the invention;

20       FIG. 11 illustrates the touch screen portion of the PBM user interface for an embodiment of the invention;

FIG. 12 presents a screen that prompts the user to select a PBM banking service for an embodiment of the invention;

25       FIG. 13 illustrates a screen with a graphical user keyboard for an embodiment of the invention;

FIG. 14A presents a screen for opening an account which includes a graphical user keypad for inputting the user's personal information for an embodiment of the invention;

30       FIG. 14B illustrates a screen for opening an account for an embodiment of the invention;

FIG. 14C shows a screen that allows a user to select the type of account to open for an embodiment of the invention;

FIG. 14D illustrates a screen wherein a customer service representative's image appears for an embodiment of the invention;

FIG. 14E depicts a screen which allows the user to select an account from which to transfer money to the new account for an embodiment of the invention;

5       FIG. 14F shows an account agreement and user's signature for an embodiment of the invention;

FIG. 14G illustrates a screen showing the successful completion of an account opening for an embodiment of the invention;

10       FIG. 15A shows a screen which presents the customer with the option of selecting different types of checks for an embodiment of the invention;

FIG. 15B illustrates a Starter check screen for an embodiment of the invention;

FIG. 15C shows a Starter check and informs the user of the status of the request for an embodiment of the invention;

15       FIG. 15D illustrates a Replenishment check screen for an embodiment of the invention;

FIG. 15E shows a Replenishment check and presents various options for proceeding with or completing the Replenishment check function for an embodiment of the invention;

20       FIG. 15F illustrates the screen which appears after the customer has selected to print Replenishment checks for an embodiment of the invention;

FIG. 15G illustrates a Cashiers check screen for an embodiment of the invention;

25       FIG. 15H shows a Cashiers check and presents various options for proceeding with or completing the Cashiers check function for an embodiment of the invention;

FIG. 15I illustrates the screen which appears after the customer has selected to print a Cashiers check for an embodiment of the invention;

30       FIG. 16A presents a screen which appears subsequent to the customer selection of obtaining a bankcard for an embodiment of the invention;

FIG. 16B presents the image of the customer's bankcard prior to the acceptance of it.

FIG. 16C shows a graphical keypad and sub-windows for inputting information with the bankcard function for an embodiment of the invention;

FIG. 16D illustrates a screen which informs the customer that a bankcard is currently being generated within the PBM for an embodiment of the invention;

5 FIG. 16E presents a screen that informs the customer that the bankcard is ready to be dispensed from the PBM for an embodiment of the invention;

FIG. 17 shows a PBM screen displaying an Internet Web-site for an embodiment of the invention; and

10 FIG. 18 presents a PBM screen showing a video demonstration of bank products and services for an embodiment of the invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A PBM is a self service method and device that provides both customers and  
15 non-customers with relevant information and transactional devices such as bankcards, personal checks, and bank drafts.

The PBM is also a sit down terminal, which is partially enclosed to ensure privacy, for up to two users who can sit side-by-side and easily view the screen. It is located within a 24 hour-accessible environment or in limited access area of a  
20 bank branch office.

The invention includes a method and system for a user to obtain financial information and perform banking transactions by first accessing a user interface, which includes the use of a terminal and or a bankcard reading device. The present invention also provides a user with the capability to enroll as a banking customer,  
25 thereby establishing a banking relationship. Accordingly, the user interface automatically prompts the user to input the user's identification data. There is provided a means for inputting the user identification data, wherein such means includes touch screen or a bankcard reader. The data comprises personal information of the user, including a user personal identification number (PIN). The  
30 information encoded on a user's bankcard may be inputted by means of the card reader. Accordingly, the bankcards can be of various types, including credit cards, debit cards, smartcards, etc.



Such data is automatically transmitted to a financial institution's remote processing unit having a database comprising bank product, service and user information. The remote processing unit automatically verifies the user identification data and determines if the user is a customer or non-customer. The  
5 remote processing unit then automatically transmits relevant financial institution database information to the user interface, which automatically displays a function menu. The user is then prompted to select a function. The user interface automatically prompts the user to input data for the selected function, followed by the user inputting data related to the selected function and the PBM performing the  
10 selected function. Once the transaction is completed, the user exits back to the main menu and select another transaction tool function, information tool function, or further exit from the PBM.

The user interface prompts the user to input additional information. This additional information is related to the specific function selected. Under the loan  
15 tool function, for example, the user is asked to provide her preferences on the type of loan desired, e.g. auto or home equity, and the length of repayment term. In another example, under the personal check tool function, the user is prompted to select the aesthetic design of her personal check.

The PBM hardware is designed and configured to allow the user to access a  
20 bank's computer network, systems, transactions and information tools. The PBM is an automated banking and information system for bank customers and non-customers to perform banking transactions and acquire banking product and service information, without the need to interact face-to-face with a bank customer representative. It comprises a terminal coupled to a remote processing unit wherein  
25 the user inputs, receives and has data displayed. A bankcard reading device coupled to the terminal for obtaining user information is also included. Even in the current technologically advanced world, the personal signature is still regarded as the primary evidence of a contract, e.g., start of a new banking relationship, as well as a means of personal identification. Accordingly, a signature inputting device  
30 coupled to the terminal for recording and verifying the user's identification information is included in the PBM.

The PBM has several devices which endow the system with the capability to immediately service the user. The system has at least one printing device which is coupled to the terminal for printing banking information and transaction information and summaries. In addition, at least one drop box is housed within the terminal  
5 having a receptacle opening for receiving user personal information, deposits and bank correspondence. There is at least one check storage unit housed within the terminal for holding the checks prior to being dispensed. At least one paper cassette is coupled to a check printing device for supplying paper for the checks to be printed, wherein at least one check printing device is housed within and coupled to  
10 the terminal. Also, there is at least one check dispensing device coupled to a check printing device for ejecting checks subsequent to a user request for such checks.

Additionally, the system utilizes a modem coupled to the terminal for accessing the Internet, along with a two-way video conferencing unit coupled to the terminal for communicating with a bank customer service representative.

15 The PBM unit is designed to be easily accessed, both physically, e.g., to be able to get in and out of the seating easily, and functionally, e.g., the use of menu screen design. The PBM's physical embodiments comprise a seating unit connected to the terminal that allows two individual users to sit side-by-side to view and interact with the user interface, including its terminal and touch screen. Also,  
20 included are audio speakers coupled to the terminal for the user to listen to the sounds associated with the information and transaction functions. At the same time, both visual and audio privacy is assured, particularly for those sessions related to personal transactions. The PBM is also designed to be suitable for two units to be placed back-to-to back and still ensure the privacy of simultaneous users.

25 The PBM invention includes the method wherein a user's interface with the PBM is facilitated by either a card reading device or via the touch screen device. The first screen visible welcomes the user and explains and illustrates how the PBM is used. The PBM determines the user's identity based upon user identification data, either directly read from a card reader device or manually inputted via a touch  
30 screen. If the user is an existing banking institution customer, the user's identification data is verified by a remote processing unit. After verification, the main menu is displayed, at which time, the customer has access to both information

tool functions and transaction tool functions. If the user is a non-customer she has only access to the information tool functions, unless she starts a new relationship with the financial institution.

Information is presented using high quality graphics on a touch screen that  
5 allows the users to navigate around the various functionalities, while at the same time, providing the user with information which gives a comprehensive overview of the specific products and services offered through the PBM, without the user leaving her present location. The invention is also a self service transactional method and device. The user interface design is be the "wrapper" look and feel touch screen  
10 display. The PBM is located at, but not limited to, a local branch facility.

The user is identified by the PBM and verified, if an existing customer, by a remote processing unit. Touch screen buttons are displayed. From the Main Menu, the customer selects both information and transaction tool functions. If the user is a non-customer, then he only has access to the information functions, unless he  
15 establishes a financial relationship with the banking institution, at which time, the transaction functions is also accessible.

There are two categories of PBM users. They include existing bank customers (bankcards holders, savings account holders, etc.) and non-customers (potential customers). This segmentation defines both the access to available  
20 technology and the type of information to be accessed.

Prior to performing obtaining banking-related information or performing a transaction, the user is prompted by user interface to select one from the group of transaction functions and information functions. Subsequently, the selected function is displayed on the user interface.

25 In terms of the transaction functions, the user further selects one from the group of requesting personal checks, replenishment checks, cashier's checks, bankcards, opening a new account, modifying an account, accessing the Internet, and requesting a demonstration, which is either video or graphical. These functions allow the user the unprecedented opportunity to enter into and conclude banking-  
30 related transactions on her own, which can only presently be performed with the assistance of a customer service representative.

The PBM is a computerized secure system which enables the user to provide, request a change and confirm her personal identification number by inputting the same into the user interface, which automatically transmits the personal identification number to the remote processing unit, then automatically registers the personal identification number in the database. The remote processing unit also  
5 verifies existing personal identification numbers.

When the user requests either a bankcard or a bank account modification, the user interface automatically prompts the user to input the user's signature into a signature recording device. If the user is a non-customer, the remote processing  
10 unit automatically updates the database identification data. If the user is an existing bank customer, the remote processing unit verifies the user's signature.

The PBM includes the capability to allow the user to request and receive assistance from a bank service representative. This feature ensures that the user is able to access and perform any of the provided functions of the PBM system, if the  
15 user encounters a problem, simply desires clarification on the operation of the PBM, or requires additional information regarding the banks products or services. The user and bank service representative are connected via two-way video teleconferencing and/or a telephone.

After performing the selected transaction, the PBM is capable of generating  
20 an output. This output comprises at least one from the group of personal checks, replenishment checks, cashier's checks, bankcards, activity summaries, reports, and information obtained from the Internet.

The method and system further comprises the steps of the user interface prompting the user to select from one of a group of transaction functions, such as  
25 requesting personal checks, replenishment checks, cashiers checks, bankcards, opening a new account, modifying an account, accessing the Internet, and requesting a demonstration. The user then selects a function, after which the user interface displays the selected function.

In one embodiment of the present invention after the Main Menu is  
30 displayed, the customer is prompted to select the type of check, either personal, replenishment or cashiers, which she desires to receive. The customer has the

option of having the check(s) generated by the PBM and issued at the time of the transaction or having the check(s) mailed to a specified address.

In another embodiment of the present invention, the transaction tool function method includes the step of selecting a function for obtaining personal checks. The user interface automatically displays the user's current address. The user interface automatically prompting the user to confirm or correct the user's current address. The correct address is transmitted from the user interface to the remote processing unit which automatically verifies the correct address. If the current address has been corrected, the remote processing unit automatically updates the database information. The database information is automatically transmitted to the user interface.

Subsequent to these verification and updating steps, the user interface automatically prompts to see if she desires additional personal checks. If the user requests additional checks, the user interface automatically transmits the request for additional checks to the remote processing unit, which confirms the request and transmits a confirmation to the user interface. The additional personal checks are mailed to the user at her home address, if she chooses, or printed within the PBM and dispensed directly to the user.

The PBM displays customers current address, asks for verification, and for the first check number that should be printed. After information verification, the checks begin to be printed, and customer picks them up from the dispenser. Once the transaction is completed, the user exits back to the main menu and select another transaction tool function, information tool function, or further exit from the PBM.

Another embodiment of the transaction tool function method includes the step of selecting the function for obtaining replenishment checks. The user interface automatically prompts the user to request replenishment checks. After receiving the check request, the user interface automatically transmits the request for the checks to the remote processing unit. The remote processing unit confirms the request for the checks and transmits a confirmation to the user interface, which automatically displays the user's current address. The user is then automatically prompted to confirm or correct her current address. If the address is incorrect, the user inputs a corrected current address. The user interface automatically transmits the current

address to the remote processing unit, which automatically verifies the current address. If the current address has been corrected, the remote processing unit automatically updating the database information, followed by the remote processing unit automatically transmitting database user information to the user interface.

5        Additionally, the user is automatically prompted to select a style of replenishment check. The user sees the displayed check style and subsequently confirm her selection or change the previously selected style. Also, the user confirms the check information, however, if the check information is incorrect, the user then inputs corrected check information. The user is allowed to enter the first  
10        check number to be printed. The user interface automatically prompts the user to select to either have the checks mailed to the user or to have the checks printed and dispensed directly to the user.

Another embodiment of the transaction tool function method includes the step of selecting the function for obtaining a cashier's check. The user interface  
15        automatically prompts the user to input payee identification information and a check amount. The image of the check is displayed and the user interface automatically prompting the user to confirm the information displayed on the check. Once the user confirms that the check information is correct, it is automatically transmitted to the remote processing unit and verified.

20        If the information has been corrected, the remote processing unit automatically updates the database check information then transmits database check information back to the user interface. The PBM automatically prints the check followed by dispensing of it directly to the user, along with an envelope and a receipt.

25        Another embodiment of the transaction tool function method includes the step of selecting the function for obtaining a bankcard. The user interface automatically prompts the user to input her signature into a signature recording device. Following this, an image of the bankcard including the user identification data is displayed. The user is then prompted to confirm the data displayed on the  
30        bankcard. If any of the bankcard data is incorrect, the user inputs corrected user identification data. The correct bankcard data is automatically transmitted to the remote processing unit, which is subsequently verified and used to update the

database. The bankcard data is then transmitted back to the user interface. The PBM automatically prints the bankcard followed by dispensing it directly to the user.

5 Additionally, the user interface prompts the user to input additional or updated information, after in input of which, the PBM automatically stores the information on the bankcard prior to the dispensing of the bankcard.

After the Main Menu is displayed, the customer is prompted to select the account tool function which allows the user to open a new account or modify an exiting account. This transaction tool function allows a non-customer to establish a  
10 new banking relationship with the banking institution.

Another embodiment of the transaction tool function method includes the step of selecting the function for opening a new account. The user interface automatically prompts the user to input the user's identification data. The user interface automatically prompts the user to input her signature into a signature  
15 recording device. The user interface displays the user identification data and asks the user to confirm the data. If the data is incorrect, the user inputs corrected user identification data. The correct user's identification data is automatically transmitted to the remote processing unit, which automatically updates the database identification data.

20 This embodiment includes a verification step which takes place after information is transmitted to the remote processing unit. Such verification further comprises the step of accessing non-bank remote processing unit databases, such as credit reporting agency databases.

The user interface automatically prompts the user to select a means of  
25 funding for the new account. The user then specifies a means of funding such as: 1) an existing account, which further includes the steps of the user inputting user identification data, such as account information and a personal identification number, 2) a bankcard, which further includes the step of the user inputting bankcard data into the user interface, including a bankcard issued by another  
30 financial institution, 3) cash, including inputting it into the user interface, and 4) a check. The selected means and amount of funding is inputted into the user interface. The user selects and confirms the selected source and amount of funding.

The information about the selected source and amount is automatically transmitted to the remote processing unit, which automatically, verifies the selected non-cash means and amount and automatically records the selected source and amount. The selected amount, once verified, is credited to the user's new account.

5        In an additional embodiment, the user is automatically prompted to choose to have their image acquired by means of a camera and if the user does choose to have an image acquired, the image is automatically displayed to the user, wherein the user is subsequently automatically prompted to accept or re-acquire the user's image. The acquired image is automatically transmitting to the remote processing  
10       unit. The image is then automatically printed on a bankcard which is to be subsequently dispensed to the user. The user is also automatically prompted to provide additional personal information by means of the user's voice which is electronically acquired and automatically transmitted to the remote processing unit.

      An embodiment of the transaction tool function method includes the step of  
15       selecting the function for modifying an existing account. The user interface automatically prompts the user to request a change to her user identification data by inputting such changes into the user interface, which automatically displays the new user identification data. After the changes are confirmed by the user, the user interface automatically transmits the new user identification data to the remote  
20       processing unit; which verifies the identification data and updates the database. Such updated information is be exchanged between a first account and a second account. The first account is ordinarily an existing customer account and the second account can be either another existing customer account or a non-customer account. Such non-customer account can be an account established and maintained by another  
25       financial institution, such as a bank, investment management company, etc.

      An embodiment of the transaction tool function method includes the step of selecting the function for accessing the Internet. The user interface automatically prompts the user to select Internet-based transaction information. The user interface automatically transmits the request for Internet-based transaction information to a  
30       remote processing unit, which automatically accesses the requested Internet-based transaction information. The remote processing unit then automatically transmits the requested Internet-based transaction information to the user interface for display



followed by the user performing an Internet-based transaction. The types of Internet-based transactions include those that would involve the payment, use, receipt, transference or management of money or other financial instruments.

An embodiment of the PBM, associated with the transaction tool function  
5 includes the use of a camera, either digital or video, which acquires the user's image. The PBM also includes a means for transmitting a user's image to the remote processing unit.

An embodiment of the PBM, associated with the transaction tool function includes the use of a microphone for acquiring the user's voice. The PBM also  
10 includes a means for transmitting a user's voice to the remote processing unit.

The PBM allows a user to access a wide range of banking related information from banking databases and the Internet. The PBM method and system further comprises the steps and capability for the user to select from among a group of information tool functions, after which the user interface displays the selected  
15 function. Subsequent to the selection of an information tool function, the user is presented with an option to request assistance from a bank service representative to solve any problems or clarify any information which has been presented. Because one of the primary functions of the information tool function is to increase the understanding of non-customers regarding the bank's various products and services,  
20 it is useful to provide the non-customer with the opportunity to begin a new relationship with the bank. Accordingly, the user interface automatically prompts the user to start a new relationship with the bank. This new relationship ordinarily includes the opening of an account with the bank. Once the user has become a customer she can begin to have access to the full range of banking products and  
25 services.

An embodiment of the information tool function includes the step of selecting bank savings account information. The user interface automatically prompts the user to select savings information and automatically transmits a request for savings information to a remote processing unit, which then automatically transmits savings  
30 information to the user interface. The user is subsequently prompted by the user interface to request to receive printed savings information, which is printed and dispensed directly to the user.

In another embodiment of the present invention, the information tool function includes the step of selecting bank savings loan service information. The user interface automatically prompts the user to select loan service information and automatically transmits a request for loan service information to a remote processing unit, which then automatically transmits the requested loan service information to the user interface. The PBM allows the user to obtain printed loan service information. When the user requests printed loan service information it is printed by the PBM and delivered directly to the user interface.

An embodiment of the information tool function method includes the step of selecting home banking products and services information. The user interface automatically prompts the user to select home banking products and services information. Once selected, the user interface automatically transmits the request for home banking products and services information to a remote processing unit, which automatically transmits home banking products and services information to the user interface. The user has the opportunity to receive printed home banking products and services information. The PBM prints home banking products and services information and delivers them directly to the user.

An embodiment of the information tool function method includes the step of selecting travel services account information. The user interface automatically prompts the user to select travel services information. When requested, the user interface automatically transmits the request to a remote processing unit, which automatically transmits the requested travel services information to the user interface. The user interface automatically prompts the user to request to receive printed travel services information. The PBM prints the requested travel services information and delivers it directly to the user.

In another embodiment of the present invention, the information tool function method the PBM provides the user with the capability to access Internet-based information. The user interface automatically prompts the user to receive Internet-based information. If requested, a request is automatically transmitted to a remote processing unit, which then automatically accesses the requested Internet-based information. The Internet-based information is transmitted to the user

interface, which displays the information. The PBM allows the user the option of receiving printed Internet-based information directly.

An embodiment of the information tool function method includes the step of selecting a video or graphical demonstration of the bank's products and services. In the case where the user desires a video demonstration, the user selects a function wherein the user interface automatically prompts the user to request such a demonstration, which is then automatically displayed. The user interface automatically transmits a request for a video demonstration to a remote processing unit, which, in turn, transmits the video demonstration to the user interface.

When a graphical demonstration is selected by the user, the user interface automatically displays a graphical demonstration. The user interface automatically transmits a request for a graphical demonstration to a remote processing unit, which automatically transmits the graphical demonstration to the user interface. The PBM allows the user to receive selected frames from the graphical demonstration, which is then printed and delivered directly to the user.

Also, a CD ROM drive is housed within and coupled to the terminal to provide for reading of terminal-based information product and service data locally.

Reference will now be made in detail to the PBM system and method by means of flowcharts and sample user interface screens.

FIG. 1 illustrates the overall configuration of the PBM system. As shown in FIG. 1, the PBM station 1 for an embodiment of the present invention includes a dispensing slot 2 for checks, money orders, receipts and printouts. The PBM has a camera/speaker compartment 3. Bankcard dispensing slot 4 is for is used for delivering PBM generated and issued cards. The drop box depositor 5 allows the a user to make deposits directly into the PBM. The signature stylus 6 and digital signature pad 7 allow the PBM to acquire the signature of a user. Included in the PBM is a card reader slot 8 for reading encoded user bankcard information. The PBM has a windows-based user interface touch screen 9 which permits the user to perform transaction functions and acquire banking and related product information.

FIG. 2 presents an overall perspective view of the PBM station 1 illustrating its size relative to two sitting chairs for the users.

FIGS. 3-4 contain block diagrams of the PBM functions.

FIG. 3 illustrates a block diagram of the two groups of tool functions which are performed by the PBM. From the main menu 10, the user chooses from either a transaction tool function 11 or an information tool function 12. The transaction tool includes functions for checks 13, bankcard 14, account 15, Internet 16, demonstration 30 and loan transactions. The information tool functions includes savings 19, loan 20, home banking 21, travel 22, Internet 23 and demonstration 24 information.

FIG. 4 illustrates the transaction tool 11 functions wherein the check function 13 further includes functions for obtaining personal 25, replacement 26 and cashier's 27 checks. The account 15 function included functions which permit a new account to be opened 28 and account information to be modified 29a. The demonstration 30 function allows the user to obtain a video 30 or graphical 31 demonstration of bank products and services.

FIGS. 5-10 contain flowcharts of the methods of performing system transactions.

FIG. 5 depicts a flowchart of process steps for a user who possesses an existing account with the bank who chooses to access the PBM with a bankcard. An initial screen 32 welcomes the user to the bank and the PBM. The user is prompted 33 to insert her bankcard into a card reader. Automatically, information is obtained from the customer database 34 about the user. The user is then prompted to select a service 35, which includes various transaction and information functions, such as opening an account 28, getting checks 13, obtaining a bankcard 14. The user modifies account information, such as changing her address of record 29b. Loan 18 and credit card applications 18 can be selected and completed. Internet access 16 to bank product information can be selected, along with a video or graphical demonstration 30 of bank products and services.

FIG. 6 illustrates the flowchart process steps for a user who possesses an existing account with the bank and who chooses to access the PBM thru the touch screen 9. From the welcome screen 32, the user touches the screen 36 to initiate access to the PBM. The user is prompted to enter information 37, such as first and last name. This information is transmitted and checked against the customer database 34. The PBM then automatically determines if the user is an existing bank

customer 38. If the user is not, she is then prompted to select a service 35. The service includes a demonstration 30, opening an account 28, or accessing the Internet 16 for information regarding bank products or services. If the user is an existing customer, she is prompted to select a service 35 which is available to customers having existing banking accounts. In this manner, the customer performs various banking transactions and obtain information regarding the banks products and services.

FIG. 7 depicts a flowchart of the process steps for a user who may or may not possess an existing account with the bank, but who chooses to access the PBM with a bankcard issued by another banking institution. After the initial presentation of the welcome screen 32, the user inserts 39 her bankcard into a bankcard reader. The PBM automatically checks the customer database 34 to determine if the information read from the user's bankcard is that of an existing customer. If the user is not an existing customer, the PBM automatically prompts her to input information 37 by means of the touch screen. The non-customer is then prompted to select a service 35 which includes a demonstration 30, opening and account 28 or accessing the Internet 16 for information regarding bank products or services. After the non-customer has accessed a particular service she can choose another service 40 during her the PBM session. If the user is an existing customer, then she is prompted to select a service 35 which is available to customers having existing banking accounts. Thus, the PBM allows both existing customers and non-customers to access the functions of the PBM.

FIG. 8 illustrates a flowchart of the process of opening an account. An existing banking customer starts 41 the process by selecting the open account function 28. The customer then is prompted to enter her PIN 42. A non-customer starts 41 the process by being prompted and entering personal information 43, such as address, phone, social security and driver license information. The PBM automatically verifies the customer PIN or inputted information 44. This information is verified by accessing a customer database 34 and/or other customer/non-customer background databases 45. Such other databases 45 may include, but are not limited to credit reporting files and public records. If the PIN/data is not valid 46, the customer is notified of the PBM's receipt of incomplete

information or a negative verification result 47. In this circumstance, the customer would be prompted to select a new service 40.

If the PIN/data is valid, the customer is prompted to select an account type 48. The customer is then prompted to select a deposit method 49. The customer may also call a customer service representative for assistance 50. The selected method of deposit includes using a bankcard 51, electronic transfer of funds from another account 52 and depositing a check 53. The customer credit/deposit information is verified 54, by electronically accessing a database or data storage center or facility 55. If the deposit is successful 56, the customer is prompted to sign the terms of the account banking agreement 58 with the stylus 6 and signature pad 7. The customer then selects a new service 40. If the deposit was unsuccessful, the customer is notified of the reason why the deposit was not accepted 57.

FIG. 9 illustrates a flowchart of the process of obtaining checks from the PBM. An existing banking customer starts 41 the process by selecting the check function 13. The PBM automatically determines weather or not the customer has already inputted her PIN 59. If the customer has not, then she is prompted to enter her PIN, having it automatically verified 60 by accessing customer information stored in a customer database 34. If the PIN is not valid, the customer can select a new service 40. When the PBM has received a valid PIN, the customer is then prompted to select the type of check 62 that she wants dispensed. The types of checks include starter 25, replenishment 26 and cashiers 27. Following check selection, the customer is prompted to select a new service 40.

FIG. 10 illustrates a flowchart of the process of obtaining a bankcard from the PBM. An existing banking customer starts 41 the process by selecting the bankcard function 14. The PBM automatically determines weather or not the customer has already inputted her PIN 59. If the customer has not, then she is prompted to enter her PIN having it automatically verified 60 by accessing a customer information stored in a customer database 34. If the PIN is not valid the customer can select a new service 40. When the PBM has received a valid PIN, it automatically determines weather or not the customer's signature has been acquired 63. If a signature has been previously acquired, the bankcard is printed with the customer's signature 66 and the customer is then prompted to select a new service

40. If a signature has not yet been acquired, the customer is asked to sign her name  
64 utilizing the signature stylus 6 and the signature pad 7. Once the customer's  
signature has been acquired, she is prompted to accept the signature 64 as written.  
If the customer does not accept the signature, she is prompted to once again to sign  
5 her signature once again. When the customer accepts the signature, the bankcard is  
printed with the customer's signature 65 and the customer is then prompted to select  
a new service 40.

FIGS. 11-8 contain examples of windows-based PBM screens from the PBM  
for the present invention.

10 FIG. 11 illustrates the PBM touch screen 100 portion of the user interface.  
This screen welcomes the user to the PBM. The screen contains several tool  
function buttons, including "Open Account" 101, "Get Check" 102, "Get Citicard"  
103, "Change Address" 104, "About Citibank" 105, "About PC Banking" 106 and  
"Exit" 107. The screen 100 prompts the user to insert her bankcard, e.g., ATM  
15 card, credit card, etc. The screen 100 also includes a "hot spot" 108 that is a  
portion of the touch screen 100 which allows the user to access the PBM services  
without the use of a bankcard.

FIG. 12 depicts a screen 110 which prompts the user to select a PBM  
service.

20 FIG. 13 illustrates a screen 120 wherein the user is presented with a  
graphical keyboard that allows the user to enter their name within several sub-  
windows 122 that appear on the screen.

FIGS. 14A-14G illustrate PBM screens 130-190 associated with opening a  
bank account.

25 FIG. 14A includes a keyboard which allows the user to open up a bank  
account by inputting personal information within several sub-windows 131 of the  
touch screen 130. This personal information, such as name, address, business  
phone, drivers license, etc., allow the banking institution establish customer  
information to be stored in the customer database. The screen also includes textual  
30 narrative which provides directive guidance to the user to assists her in inputting  
information and making decisions regarding the selection and use of PBM functions.

FIG. 14B also relates to the opening of a banking account. The user is promoted to verify the requested information. Once the inputted information is verified by the user, the PBM screen prompts the user to continue onto the next screen by pressing the "Next" button 141.

5        FIG. 14C depicts a screen 150 which permits the user to select the type of account she would like to open. The screen includes a sub-window illustrating the Account Types available, including Checking 152, Savings 153, and CD Account 154. The screen also prompts the user to deposit money into the new account by means of "Yes" 155 and "No" 156 buttons. The screen also includes a "Call  
10    Customer Service" button 157 which allows the user to request and contact a customer service representative to obtain assistance or information regarding the banks products and services.

FIG. 14D illustrates a screen 160 in which a customer service representative has been requested and contacted. The representative appears in a video sub-  
15    window 161. When the user completes her request for assistance from the representative, the user simply presses the "Hang Up" button on the touch screen 162.

FIG. 14E illustrates a screen 170 which appears subsequent to the user choosing to deposit money into a new account. The screen includes a keyboard 121  
20    and sub-windows for the user to input the source of the money and relevant account information. In this particular screen, the "Transfer Money From" 171 and the "Bank Account Info" 172 sub-windows appear, based upon the user's selection of a "bank account" on the screen. If the user had selected a bankcard or credit card as the transfer source, a related sub-window would have appeared, as opposed to the  
25    "Bank Account Info" sub-window 172. The screen also includes a "Call Customer Service" button to request assistance from a customer representative.

FIG. 14F depict the acquired user signature. The screen 180 shows the customer account agreement while the user is prompted to provide her signature to indicate acceptance of the terms of the agreement. The user provides her signature  
30    by means of the signature stylus 6 and the signature pad 7, as provided in Fig. 1. The user's signature 181 appears on the screen. The user is also prompted to re-



sign or accept written signature, by means of "Sign Again" 182 and "Accept Signature" 183 buttons.

FIG. 14G. illustrates the successful completion of the user opening an account. The user is prompted to receive a record of the account opening transaction, get a bankcard or obtain checks. The user accepts or rejects these choices by pressing the "Yes" 191 or "No" 192 buttons provided on the screen. When the user has completed the account opening, she selects the "Done" button 193 to continue to select additional PBM services.

FIGS. 15A-15I 200-280 illustrate screens for the selection of the PBM check functions.

FIG. 15A illustrates a screen 200 which allows the customer to select "Starter Checks" 201, "Replenishment Checks" 202, and "Cashiers Checks" 203. The customer is prompted to select the type of checks desired. Textual narrative is provided to assist the customer in completing her check transactions.

FIG. 15B shows a Starter Check 211. The screen 210 also includes "Print" 212 and "Done" 213 buttons which allow the user to print the requested starter checks and complete this check transaction.

FIG. 15C shows a Starter Check 211 while textual narrative is presented informing the user of the status of her request. The user is also prompted to press the "Done" button 221 after she has received the checks.

FIG. 15D presents a Replenishment Check 231. The screen 230 includes a sub-window 232 which allows the customer to select the beginning check number of the replenishment checks. The desired beginning check number is inputted by means of the graphical user keyboard 121 which is also shown in the screen.

FIG. 15E shows a Replenishment Check 231 while prompting the customer to modify the inputted information, print the check or complete the transaction. "Edit" 241, "Print" 242 and "Done" 243 buttons are included to permit the customer to answer the PBM prompts.

FIG. 15F shows a screen which appears after the customer has selected to print the Replenishment Checks 231. The user is also prompted to press the "Done" button 251 after she has received the checks.

FIG. 15G presents a Cashiers Check 261. The screen 260 includes a graphical user keyboard 121 for inputting relevant check information, such as amount, payee, etc., into sub-windows 262.

FIG. 15H shows a Cashiers Check 261 while prompting the customer to  
5 modify the inputted information, print the check or complete the transaction. "Edit" 271, "Print" 272 and "Done" 273 buttons are included to permit the customer to answer the PBM prompts.

FIG. 15I shows a screen which appears after the customer has selected to print the Cashiers Checks 261. The customer is also prompted to press the "Done"  
10 button 281 after she has received the checks.

FIGS. 16A-16E illustrate PBM screens 290-330 for the selection of the PBM bankcard, e.g., Citicard, functions.

FIG. 16A illustrates a screen 290 which appears subsequent to the customer selecting to obtain a bankcard. The customer is prompted to "Touch Here" 291 in  
15 order to proceed with the printing and dispensing of the PBM generated bankcard.

FIG. 16B presents the image of the customers bankcard 301 prior to her acceptance of it. The customer's signature is also displayed on the bankcard. The customer is then prompted to accept the signature by pressing a "Touch Here" button 302 or re-sign by selecting a "Try Again" button 303.

FIG. 16C shows a graphical keypad 311 having a sub-window 312 for  
20 displaying customer inputted data and/or confirmation of such data. The screen also displays textual directive guidance to assist the customer in inputting and selecting a PIN.

FIG. 16D illustrates a screen 320 which informs the customer that the PBM  
25 is printing her bankcard.

FIG. 16E illustrates a screen 330 which informs the customer that her bankcard has been dispensed from the bankcard slot 4 of Fig. 1. After the customer removes the bankcard from the PBM she presses the displayed "Touch Here" 331 button to continue with other PBM tool function.

FIG. 17 shows a PBM screen 340 displaying an Internet Web-site. The  
30 screen presents information about the PBM bank. As illustrated in this Figure, the customer has selected the Internet tool function 16 of Fig. 3, by means of pressing

the "About the Bank" button 105. The PBM's capability to access the Internet allows the PBM user to obtain large amounts of information regarding, not only the banks products and services, but also the bank as an institution, as well as other banking related Internet Web sites.

5           FIG. 18 presents a PBM screen 350 displaying a video demonstration 30. The screen presents videographic information 351 about the banks products and services. A "Next" button 352 is included to allow the user to continue with obtaining additional information.

10           Embodiments of the present invention have now been described in fulfillment of the above objects. It will be appreciated that these examples are merely illustrative of the invention and will be apparent to those of ordinary skill in the art who examine and practice the present invention.

**WHAT IS CLAIMED IS:**

1. A method for a user to obtain financial information and perform banking transactions, comprising:
  - 5 accessing a user interface;
  - enrolling the user as a bank customer;
  - the user interface automatically prompting the user to enter user identification data;
  - the user interface accepting the user identification data;
  - 10 the interface automatically transmitting the user identification data to a remote processing unit having a database;
  - the remote processing unit automatically determining if the user is a non-customer;
  - the remote processing unit automatically transmitting database information to
  - 15 the user interface;
  - the user interface automatically displaying a function menu;
  - the user interface automatically prompting the user to select a function;
  - the user interface accepting information from the user regarding the selected function; and
  - 20 the user interface performing the selected function.
2. The method according to claim 1 wherein the user is a non-customer.
3. The method according to claim 1 further comprising:
  - 25 the user interface prompting the user to input additional information; and
  - the user interface accepting the additional information.
4. The method according to claim 3 further comprising:
  - 30 remote processing unit database.

5. The method according to claim 1 wherein the user selection further comprises:

the user interface prompting the user to select one from the group of a transaction function and an information function;

5 the user interface accepting the selected function; and

the user interface displaying the selected function.

6. The method according to claim 5 wherein, if a transaction function is selected, the user further selects one from the group of requesting personal checks, replenishment checks, cashier's checks, bankcards, opening an account, modifying  
10 an account, accessing the Internet, and requesting a demonstration.

7. The method according to claim 5 wherein, if an information function is selected, the user further selects one from the group of savings, loan, home  
15 banking, travel, Internet and demonstration functions.

8. The method according to claim 6 further comprising:

the user interface automatically prompting the user to input her signature into a signature recording device;

20 the signature recording device accepting the user's inputted signature;

the user interface displaying the user identification data;

the user interface automatically prompting the user to confirm the data displayed;

the user interface accepting the user's confirmation of the displayed data;

25 if the data is incorrect, the user interface accepting the user's inputted corrected user identification data; and

the remote processing unit automatically updating database identification data.

30 9. The method according to claim 1 further comprises:

the user interface automatically prompting the user to select a source of funds to be deposited into a user's account;

the user interface accepting the user's selected source of funding;  
the user interface accepting the user's selected amount to be funded;  
the user interface automatically prompting the user to confirm the selected  
source and amount;

5 the user interface accepting the user's confirmation of the selected source and  
amount;

the user interface automatically transmitting the selected source and amount  
to the remote processing unit;

10 the remote processing unit automatically verifying the selected source and  
amount;

the remote processing unit automatically recording the selected source and  
amount; and

crediting the requested amount to a user's account.

15 10. The method according to claim 9 wherein the source of funding  
comprises:

at least one from the group of a non-customer bank account, existing back  
account, bankcard, cash, or check.

20 11. The method according to claim 1 wherein the user is automatically  
prompted to choose to have their photograph acquired by means of a camera;

if chosen, the image is automatically displayed to the user;

the user then being automatically prompted to accept or re-acquire the user's  
image; and

25 if accepted, the image being automatically transmitted to the remote  
processing unit.

12. The method according to claim 11 wherein said selected image is  
automatically printed on a bankcard to be subsequently dispensed to the user.

30

13. The method according to claim 1 wherein the user is automatically  
prompted to provide additional personal information by means of the user's voice.

14. The method according to claim 13 further wherein the user's voice is electronically acquired and automatically transmitted to the remote processing unit.

5 15. A method for a user to obtain financial information and perform banking transactions, comprising:

accessing a user interface;

the user interface automatically prompting the user to enter user identification data;

10 the user interface accepting the user identification data;

the interface automatically transmitting the user identification data to a remote processing unit having a database;

the remote processing unit automatically verifying the user identification data;

15 the remote processing unit automatically determining if the user is a customer or non-customer;

the remote processing unit automatically transmitting database information to the user interface;

the user interface automatically displaying a function menu;

20 the user interface automatically prompting the user to select a function;

the user interface accepting information from the user regarding the selected function; and

the user interface performing the selected function.

25 16. The method according to claim 15 wherein the accessing step includes using a terminal.

17. The method according to claim 15 wherein the user interface comprises a bankcard reading device.

30

18. The method according to claim 15 wherein the user identification data comprises personal information of the user.

19. The method according to claim 18 wherein the user identification number data comprises a personal identification number.

5 20. The method according to claim 15 wherein the database comprises bank product, service and user information.

21. The method according to claim 15 further comprising:  
the user interface prompting the user to input additional information; and  
10 the user interface accepting the additional information.

22. The method according to claim 15 wherein the user selection further comprises:  
the user interface prompting the user to select one from the group of a  
15 transaction function and an information function;  
the user interface accepting a selected function; and  
the user interface displaying the selected function.

23. The method according to claim 22 wherein, if a transaction function  
20 is selected, the user who is a customer further selects one from the group of requesting personal checks, replenishment checks, cashier's checks, bankcards, opening an account, modifying an account, accessing the Internet, and requesting a demonstration.

24. The method according to claim 23 wherein the step of selecting the  
25 function for obtaining personal checks comprises:  
the user interface automatically prompting the user for a request for personal checks;  
the user interface automatically transmitting the request for the personal  
30 checks to the remote processing unit;  
the remote processing unit confirming the request for the personal checks and transmitting a confirmation to the user interface;



- the user interface automatically displaying the user's current address;  
the user interface automatically prompting the user to confirm or correct the  
user's current address;  
if the address is incorrect, the user interface accepting the user's corrected  
5 current address;  
if the address has been corrected, the user interface automatically  
transmitting the corrected current address to the remote processing unit;  
the user interface automatically transmitting the current address to the remote  
processing unit;  
10 the remote processing unit automatically verifying the current address;  
if the current address has been corrected, the remote processing unit  
automatically updating the database information;  
the remote processing unit automatically transmitting database information to  
the user interface;  
15 the user interface automatically prompting the user to select to either have  
the checks mailed to the user or to have the checks printed and dispensed directly to  
the user; and  
if the dispensed checks are selected, printing and dispensing the checks.
- 20 25. The method according to claim 23 wherein the step of selecting the  
function for obtaining replenishment checks comprises:  
the user interface automatically prompting the user for a request for  
replenishment checks;  
the user interface automatically transmitting the request for the checks to the  
25 remote processing unit;  
the remote processing unit confirming the request for the checks and  
transmitting a confirmation to the user interface;  
the user interface automatically displaying the user's current address;  
the user interface automatically prompting the user to confirm or correct the  
30 current address;  
if the address is incorrect, the user interface accepting the user's corrected  
current address;

- if the address has been corrected, the user interface automatically transmitting the corrected address to the remote processing unit;
- the user interface automatically transmitting the current address to the remote processing unit;
- 5 the remote processing unit automatically verifying the current address;
- if the current address has been corrected, the remote processing unit automatically updating the database information;
- the remote processing unit automatically transmitting database user information to the user interface;
- 10 the user interface automatically prompting the user to select a style of replenishment check;
- the user interface accepting confirmation of the selected check style;
- displaying an image of the check;
- the user interface automatically prompting the user to confirm the
- 15 information displayed on the check;
- if the check information is incorrect, the user interface accepting the user's corrected check information;
- if the selected check style is incorrect, the user interface accepting the user's corrected check style;
- 20 the user interface automatically prompting the user to enter the first check number to be printed;
- the user interface automatically prompting the user to select to either have the checks mailed to the user or to have the checks printed and dispensed directly to the user; and
- 25 if the dispensed checks are selected, printing and dispensing the checks.
26. The method according to claim 23 wherein the step of selecting the function for obtaining a cashier's check further comprises:
- the user interface automatically prompting the user to input payee
- 30 identification information and a check amount;
- displaying an image of the check;

the user interface automatically prompting the user to confirm the information displayed on the check;

if the check information is incorrect, the user interface accepting the user's corrected check information;

5 the user interface automatically transmitting the check information to the remote processing unit;

the remote processing unit automatically verifying the check information;

the remote processing unit automatically updating database check information;

10 the remote processing unit automatically transmitting database check information to the user interface;

printing the check, an envelope and a receipt; and

dispensing the check, envelope and receipt.

15 27. The method according to claim 23 wherein the step of selecting the function for obtaining a bankcard further comprises:

the user interface automatically prompting the user to input the user's signature into a signature recording device;

the signature recording device accepting the user's signature;

20 the user interface displaying an image of the bankcard including the user identification data;

the user interface automatically prompting the user to confirm the data displayed on the bankcard;

25 if the bankcard data is incorrect, the user interface accepting the user's corrected user identification data;

the user interface automatically transmitting the bankcard data to the remote processing unit;

the remote processing unit automatically verifying the bankcard data;

the remote processing unit automatically updating database bankcard data;

30 the remote processing unit automatically transmitting database bankcard data to the user interface;

printing the bankcard; and

dispensing the bankcard.

28. The method according to claim 27 further comprising:  
the user interface prompting the user to input additional or updated  
5 information;  
the user interface accepting the inputted information; and  
automatically storing the information on the bankcard prior to the dispensing  
of the bankcard.
- 10 29. The method according to claim 23 further comprising:  
the user interface automatically prompting the user for a request to change  
the personal identification number;  
if a change is requested, the user interface accepting the user's new personal  
identification number;  
15 the user interface automatically prompting the user to confirm the new  
personal identification number;  
if the user is a non-customer, prompting the user to select a personal  
identification number;  
the user interface accepting the user's inputted personal identification  
20 number;  
the user interface accepting confirmation of the selected personal  
identification number after it is re-entered;  
the user interface automatically transmitting the personal identification  
number to the remote processing unit;  
25 the remote processing unit automatically registering the personal  
identification number in the database; and  
the remote processing unit automatically verifying the personal identification  
number.
- 30 30. The method according to claim 23 wherein the demonstration  
comprises a video presentation.

31. The method according to claim 23 wherein the demonstration comprises a graphical demonstration.

32. The method according to claim 23 wherein the step of selecting the  
5 function for opening a new account further comprises:  
the user interface automatically prompting the user to input her signature into  
a signature recording device;  
the signature recording device accepting the user's inputted signature;  
the user interface displaying the user identification data;  
10 the user interface automatically prompting the user to confirm the data  
displayed;  
the user interface accepting the user's confirmation of the displayed data;  
if the data is incorrect, the user interface accepting the user's inputted  
corrected user identification data; and  
15 the remote processing unit automatically updating database identification  
data.

33. The method according to claim 32 wherein the verification of user  
identification data further comprises accessing non-bank remote processing unit  
20 databases.

34. The method according to claim 32 wherein the user is automatically  
prompted to choose to have their photograph acquired by means of a camera;  
if chosen, the image is automatically displayed to the user; and  
25 the user then being automatically prompted to accept or re-acquire the user's  
image.

35. The method according to claim 34 wherein the accepted image is  
automatically transmitted to the remote processing unit.  
30

36. The method according to claim 34 wherein said selected image is  
automatically printed on a bankcard to be subsequently dispensed to the user.

37. The method according to claim 32 wherein the user is automatically prompted to provide additional personal information by means of the user's voice.

5 38. The method according to claim 37 further wherein the user's voice is electronically acquired and automatically transmitted to the remote processing unit.

39. The method according to claim 23 wherein the step of selecting the function for opening a account further comprises:

10 the user interface automatically prompting the user to select a means of funding for the new account;

the user interface accepting the user's selected means of funding;

the user interface accepting the user's selected amount to be funded;

15 the user interface automatically prompting the user to confirm the selected means and amount;

the user interface accepting the user's confirmation of the selected means and amount;

the user interface automatically transmitting the selected means and amount to the remote processing unit;

20 the remote processing unit automatically verifying the selected means and amount; and

the remote processing unit automatically recording the selected means and amount.

25 40. The method according to claim 23 wherein the step of selecting the function for opening a new account further comprises:

the user interface automatically prompting the user to input the user's signature into a signature recording device; and

the signature recording device accepting the user's inputted signature.

30

41. The method according to claim 39 wherein the means of funding comprises an existing account.

42. The method according to claim 41 further comprising the steps of user interface accepting the user's identification data, account information, and amount.

5

43. The method according to claim 39 wherein the means of funding comprises a bankcard.

44. The method according to claim 43 further comprising the step of the user interface accepting a bankcard.

10

45. The method according to claim 39 wherein the means of funding comprises cash.

15

46. The method according to claim 45 further comprising the step of the user interface accepting cash.

47. The method according to claim 39 wherein the funding means comprises a check.

20

48. The method according to claim 47 further comprising the step of the user interface accepting a check.

49. The method according to claim 23 wherein the step of selecting the function for modifying an account further comprises:

25

the user interface automatically prompting the user to request a change to the user's identification data;

the user interface accepting the user's changed user identification data;

the user interface automatically displaying new user identification data

30

the user interface automatically prompting the user to confirm the new user identification data;

user inputting confirmation of new user identification data;

the user interface automatically transmitting the new user identification data to the remote processing unit;

the remote processing unit automatically verifying the new user identification data; and

5 the remote processing unit automatically transmitting the verified new user identification data to the user interface.

50. The method according to claim 49 further comprising the step of transferring funds between a first account and a second account.

10

51. The method according to claim 50 wherein the first account is customer account and the second account is a non-customer account.

52. The method according to claim 23 wherein the step of selecting the function for accessing the Internet further comprises:

15

the user interface automatically prompting the user to select Internet-based transaction information;

the user interface accepting the user's request for the selected Internet-based transaction information;

20

the user interface automatically transmitting a request for Internet-based transaction information to a remote processing unit;

the remote processing unit automatically accessing the requested Internet-based transaction information;

25 the remote processing unit automatically transmitting the requested Internet-based transaction information to the user interface; and

the user interface automatically displaying the selected Internet-based transaction information; and

the user interface performing the Internet-based transaction.

30 53. The method according to claim 23 wherein the selection of the transaction function further comprises the user interface automatically prompting the



user with an option to request and receive assistance from a bank service representative.

54. The method according to claim 53 further comprising the user  
5 interface accepting the user's requested assistance regarding the selected transaction  
function from the bank service representative; and  
connecting the user to the bank service representative for assistance.

55. The method according to claim 54 further includes connecting the  
10 user and bank service representative via two-way video teleconferencing.

56. The method according to claim 54 further includes the user and bank  
service representative using a telephone.

57. The method according to claim 15 further comprises the generation of  
15 an output.

58. The method according to claim 57 wherein the output comprises at  
least one from the group of personal checks, replenishment checks, cashier's  
20 checks, bankcards, activity summaries, reports, demonstration information and  
information obtained from the Internet.

59. The method according to claim 22 wherein, if an information  
function is selected, the user further selects one from the group of savings, loan,  
25 home banking, travel, Internet and demonstration functions.

60. The method according to claim 59 wherein the user is a non-  
customer.

61. The method according to claim 59 wherein the selected information  
30 function comprises bank savings account information.

62. The method according to claim 61 wherein selecting the information function for savings account information further comprises:

the user interface automatically prompting the user to select savings information;

5 the user interface accepting the user's selection of savings information;

the user interface automatically transmitting a request for savings information to a remote processing unit; and

the remote processing unit automatically transmitting savings information to the user interface.

10

63. The method according to claim 62 further comprising:

the user interface automatically prompting the user whether to receive printed savings information;

15 the user interface accepting the user's request to receive printed savings information; and

the user interface printing savings information.

64. The method according to claim 59 wherein the selected information function comprises bank loan service information.

20

65. The method according to claim 64 wherein selecting the information function for loan service information further comprises:

the user interface automatically prompting the user to select loan service information;

25 the user interface accepting the user's selection of loan service information;

the user interface automatically transmitting a request for loan service information to a remote processing unit; and

the remote processing unit automatically transmitting loan service information to the user interface.

30

66. The method according to claim 65 further comprising:

the user interface automatically prompting the user to receive loan service information;

the user interface accepting the user's request to receive printed loan service information; and

5 the user interface printing loan service information.

67. The method according to claim 59 wherein the selected information function comprise home banking products and services information.

10 68. The method according to claim 67 wherein the selecting of the information function for home banking products and services information further comprises the steps of:

the user interface automatically prompting the user to select home banking products and services information;

15 the user interface accepting the user's selection of home banking products and services information;

the user interface automatically transmitting a request for home banking products and services information to a remote processing unit; and

20 the remote processing unit automatically transmitting home banking products and services information to the user interface.

69. The method according to claim 68 further comprising:

the user interface automatically prompting the user to receive printed home banking products and services information;

25 the user interface accepting the user's request to receive printed home banking products and services information; and

the user interface printing home banking products and services information.

70. The method according to claim 59 wherein the selected information  
30 function comprise travel services information.

71. The method according to claim 70 wherein the selection of the information function for travel services information further comprises:

the user interface automatically prompting the user to select travel services information;

5 the user interface accepting the user's selection of travel services information;

the user interface automatically transmitting a request for travel services information to a remote processing unit; and

10 the remote processing unit automatically transmitting travel services information to the user interface.

72. The method according to claim 71 further comprising:

the user interface automatically prompting the user to receive printed travel services information;

15 the user interface accepting the user's request to receive printed travel services information; and

the user interface printing travel services information.

73. The method according to claim 59 wherein the selected information  
20 function comprises Internet-based information.

74. The method according to claim 73 further comprising:

the user interface automatically prompting the user to request Internet-based information;

25 the user interface accepting the user's request for Internet-based information;

the user interface automatically transmitting a request for Internet-based information to a remote processing unit;

the remote processing unit automatically accessing the requested Internet-based information;

30 the remote processing unit automatically transmitting the requested Internet-based information to the user interface; and

the user interface automatically displaying the selected Internet-based information;

the user interface automatically prompting the user to request printed Internet-based information;

5 the user interface accepting the user's request to receive printed Internet-based information; and

the user interface printing Internet-based information.

75. The method according to claim 59 wherein the selected information  
10 function further comprises a video demonstration.

76. The method according to claim 75 wherein the selection of the information function for a video demonstration further comprises:

the user interface automatically prompting the user to select video  
15 demonstration;

the user interface accepting the user's selection of a video demonstration;

and

the user interface automatically displaying the selected video demonstration.

20 77. The method according to claim 76 further comprising:

the user interface automatically transmitting a request for a video demonstration to a remote processing unit; and

the remote processing unit automatically transmitting the video demonstration to the user interface.

25

78. The method according to claim 59 wherein the selected information function further comprises a graphical demonstration.

79. The method according to claim 78 wherein the selection of the  
30 information function for a graphical demonstration further comprises:

the user interface automatically prompting the user to select a graphical demonstration;

the user interface accepting the user's selection of a graphical demonstration;  
and  
the user interface automatically displaying the selected graphical demonstration.

5

80. The method according to claim 78 further comprising:  
the user interface automatically transmitting a request for a graphical demonstration to a remote processing unit; and  
the remote processing unit automatically transmitting the graphical demonstration to the user interface.

10

81. The method according to claim 78 further comprising:  
the user interface automatically prompting the user whether to receive selected frames from the graphical demonstration;  
the user interface accepting the user's selection of frames from the graphical demonstration; and  
the user interface printing the selected frames.

15

82. The method according to claim 59 wherein the selection of the information function further comprises the user interface automatically prompting the user with an option to request assistance from a bank service representative.

20

83 The method according to claim 59 further comprises the generation of an output.

25

84. The method according to claim 83 wherein the output comprises information relating to at least one from the group of savings, loan, home banking, travel, Internet and demonstration functions.

30

85. A system for a user to obtain financial information and perform banking transactions, comprising:  
means for accessing a user interface;

means for the user interface to automatically prompt the user for user identification data;

means for inputting the user identification data;

means for the interface to automatically transmit the user identification data to a remote processing unit having a database;

means for the remote processing unit to automatically verify the user identification data;

means for the remote processing unit to automatically determine if the user is a non-customer;

means for the remote processing unit to automatically transmit to the user interface database information;

means for the user interface to automatically display a function menu;

means for the user to select a function;

means for the user interface to automatically prompt the user to input data for the selected function;

means for the user to input data related to the selected function; and

means for the user interface to perform the selected function.

86. An automated banking and information system for bank customers and non-customers to perform banking transactions and acquire banking product and service information, without the need to interact face-to-face with a bank customer representative comprising:

a terminal coupled to a remote processing unit for the user to input, receive and display data;

a bankcard reading device coupled to the terminal for obtaining user information;

a signature inputting device coupled to the terminal for recording and verifying the user's identification information;

at least one printing device coupled to the terminal for printing banking information and transaction information and summaries;

at least one drop box housed within the terminal having a receptacle opening for receiving user personal information, deposits and bank correspondence;

at least one check storage unit housed within the terminal for holding the checks prior to being dispensed;

at least one paper cassette coupled to a check printing device for supplying paper for checks to be printed;

5 at least one check printing device housed within and coupled to the terminal;

at least one check dispensing device coupled to a check printing device for ejecting checks subsequent to a user request for checks;

at least one bankcard storage device housed within the terminal for holding blank bankcards;

10 a bankcard printing device housed within the terminal and coupled to the terminal;

at least one dispensing device coupled with a bankcard printing device for ejecting bankcards;

15 a CD ROM drive housed within and coupled to the terminal for reading terminal-based information product and service data from a CD;

a modem coupled to the terminal for accessing the Internet; and

a two-way video conferencing unit coupled to the terminal for communicating with a bank customer service representative.

20 87. The system according to claim 86 further comprising:

a seating unit connected to the terminal for allowing at least one user to sit and view the terminal; and

an audio speaker coupled to the terminal for the user to listen to sounds associated with the information and transaction functions.

25

88. The system according to claim 86 wherein the bankcards further comprise smartcards.

89. The system according to claim 86 further comprising:

30 a digital camera for acquiring the user's image.

90. The system according to claim 86 further comprising:



a video camera for acquiring the user's image.

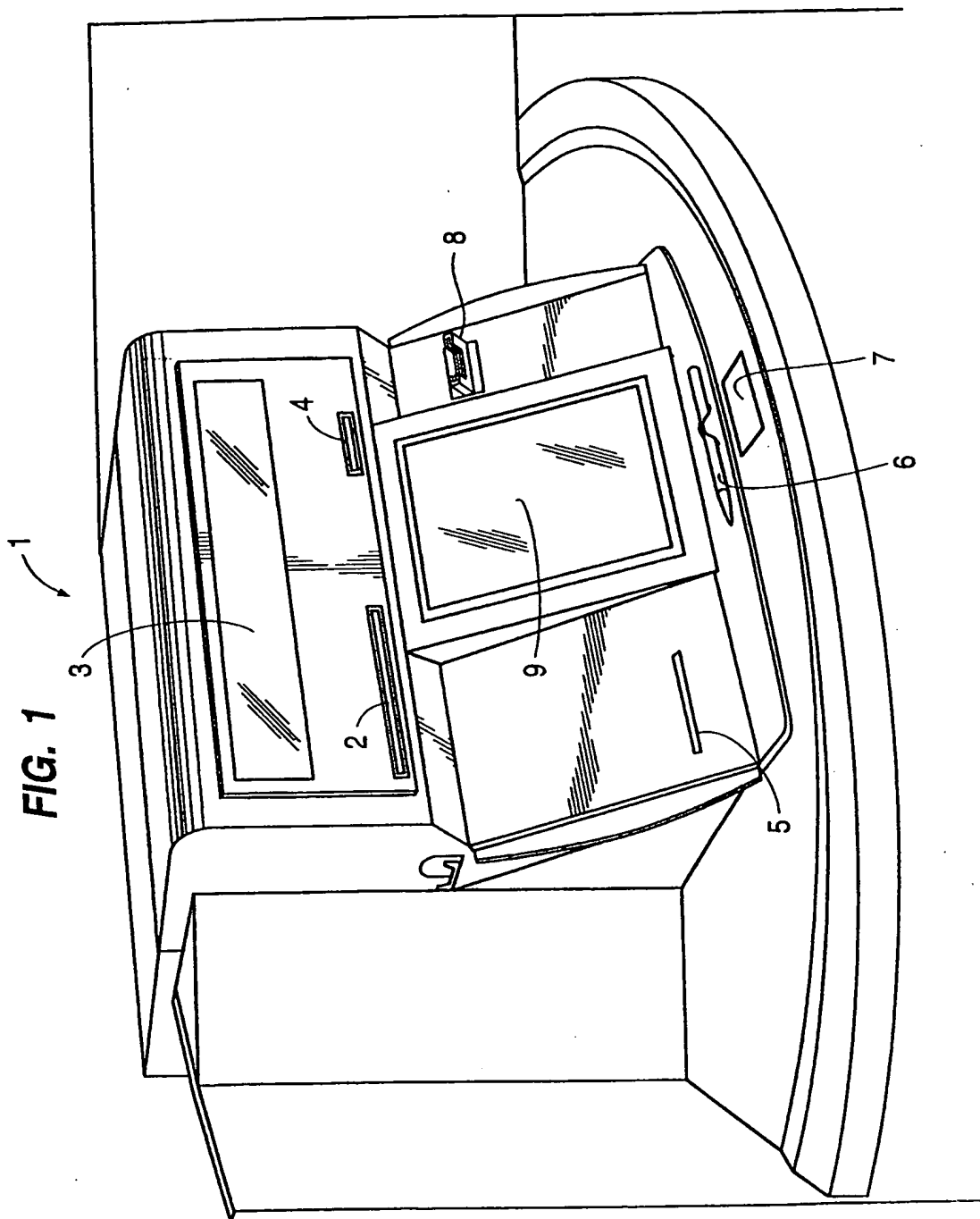
91. The system according to claim 85 further comprising:  
a means for transmitting a user's image to the remote processing unit.

5

92. The system according to claim 86 further comprising:  
a microphone for acquiring the user's voice.

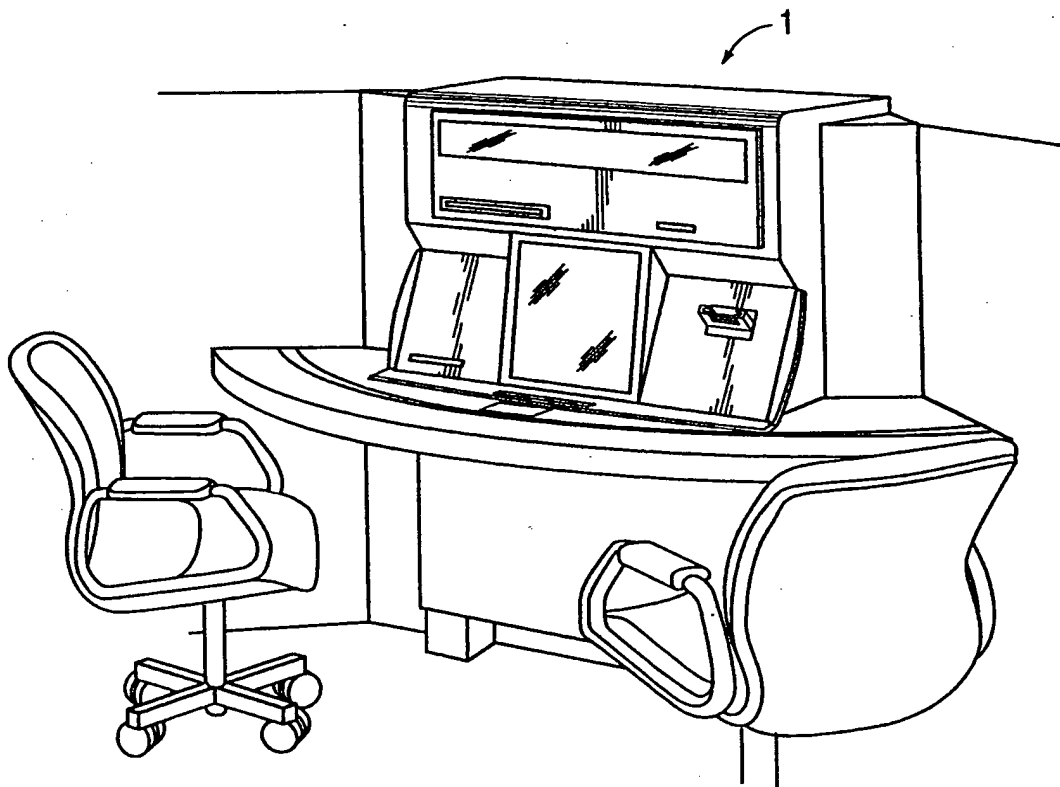
10

93. The system according to claim 85 further comprising:  
a means for transmitting a user's voice to the remote processing unit.

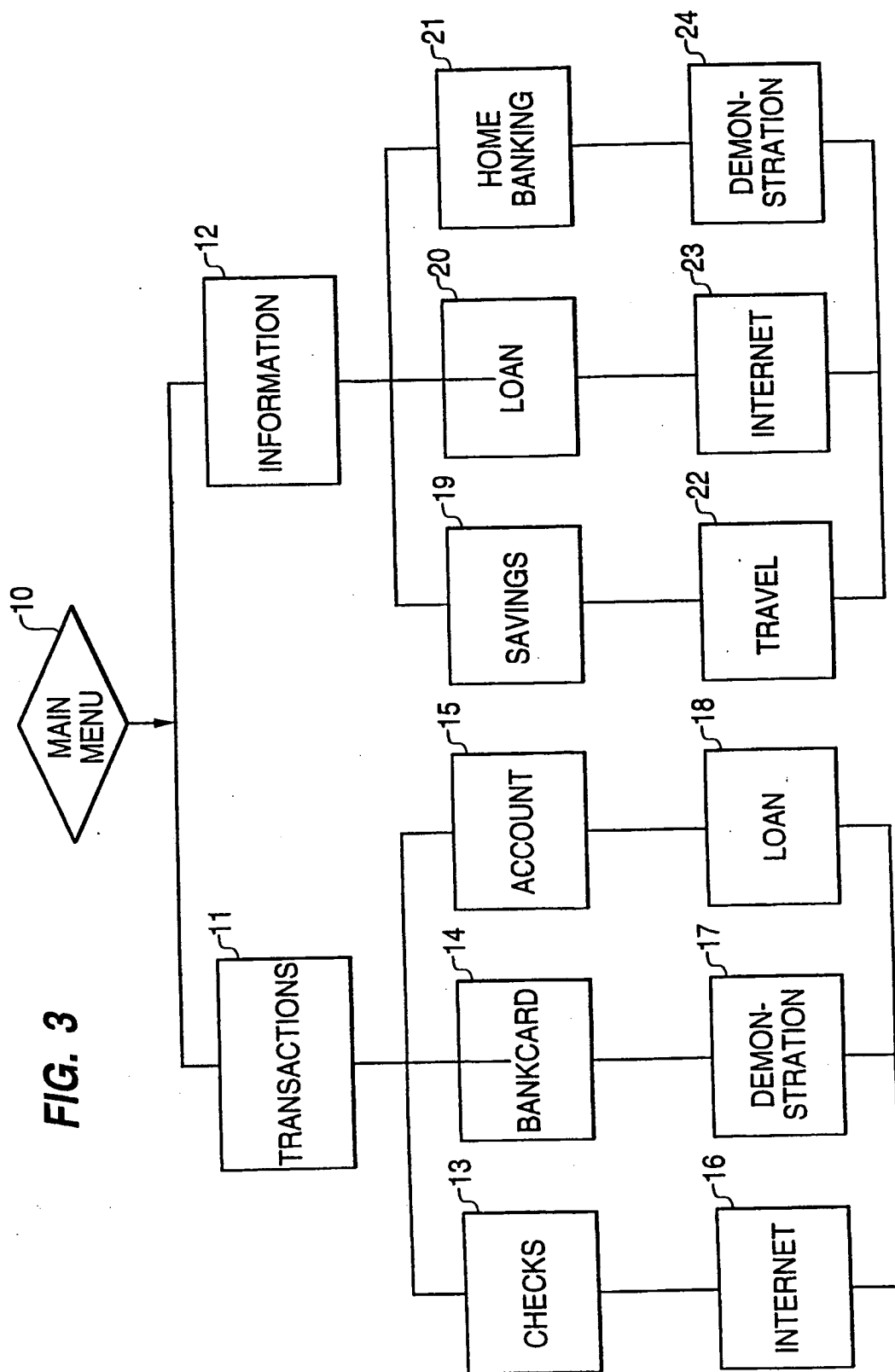


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**FIG. 2**



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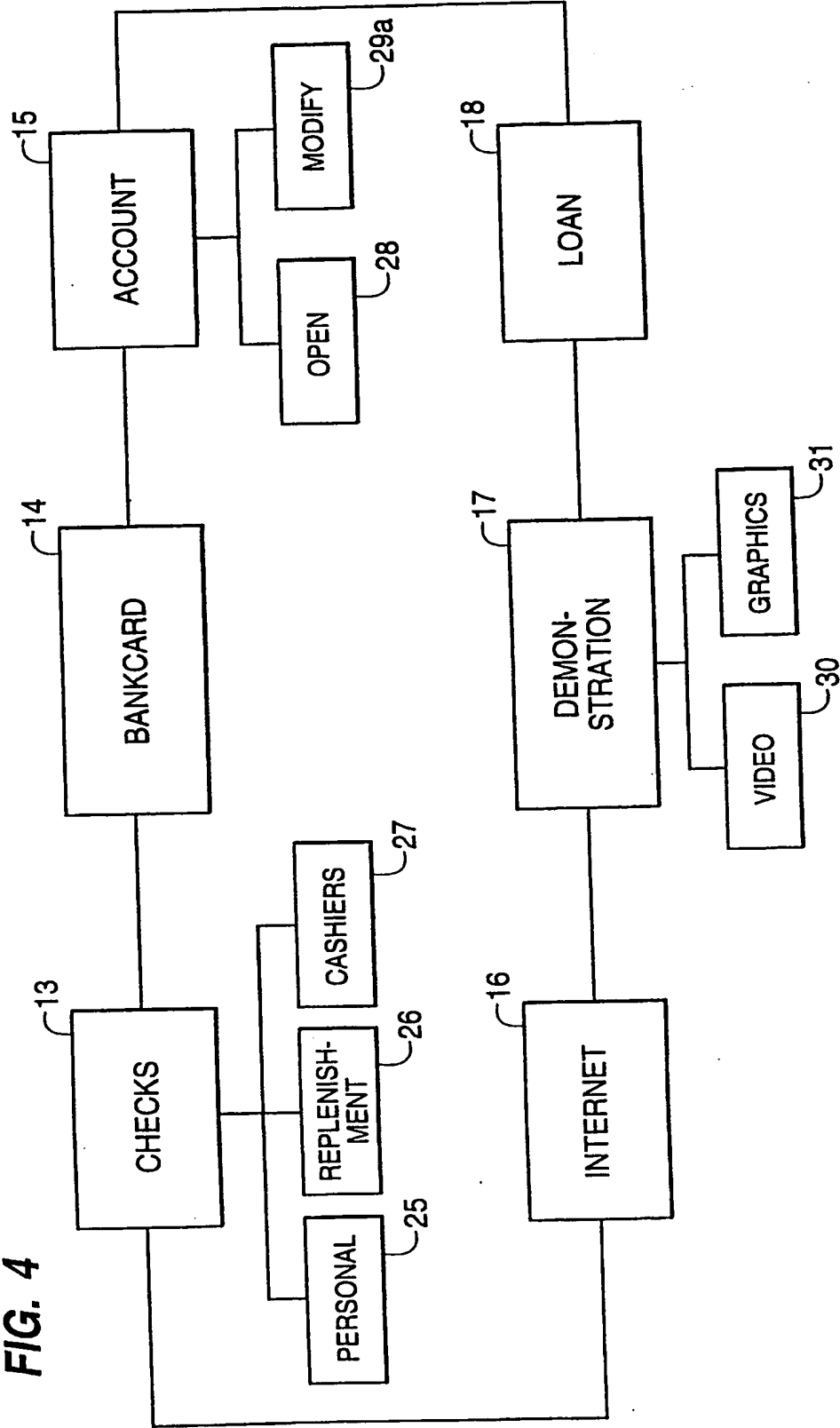
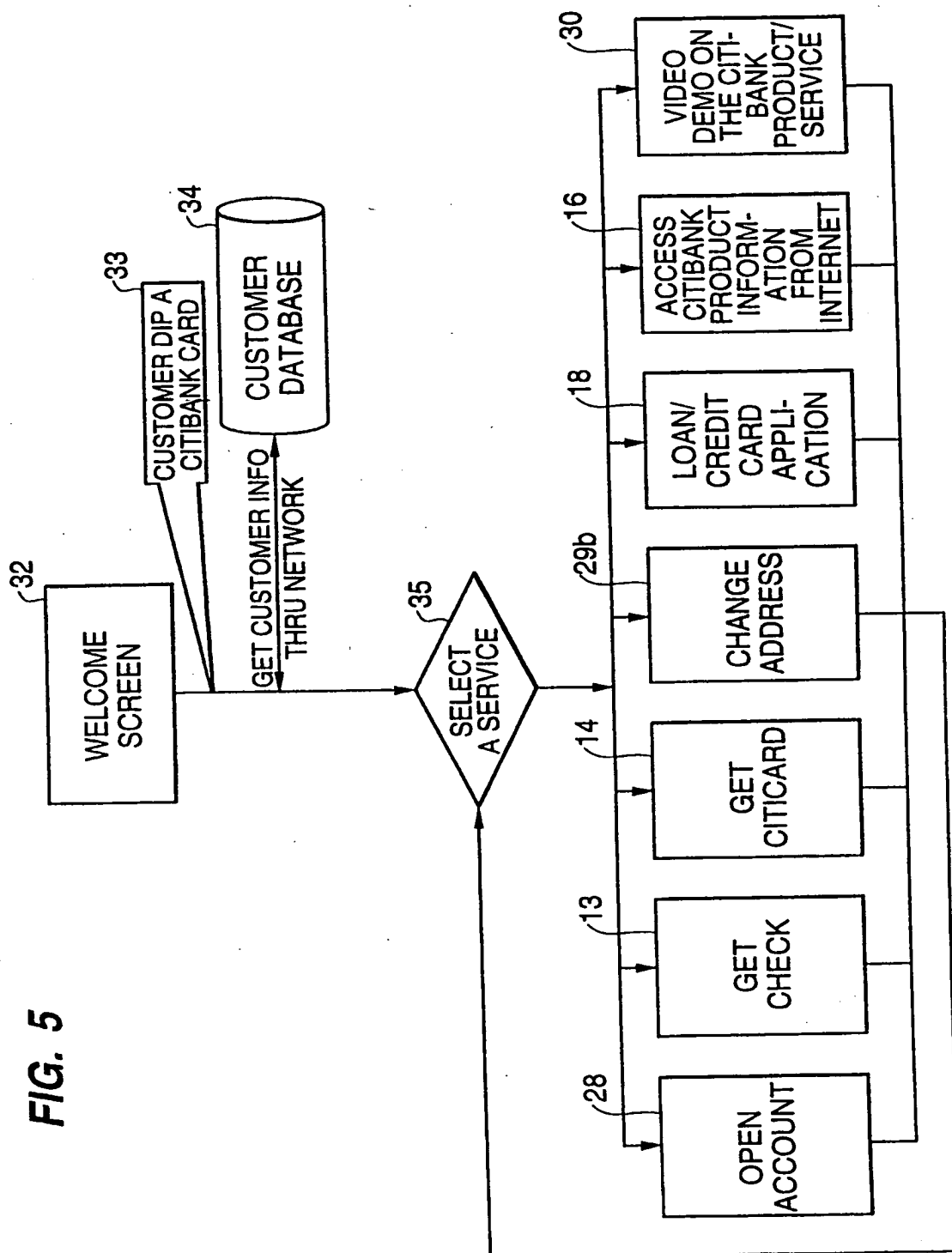


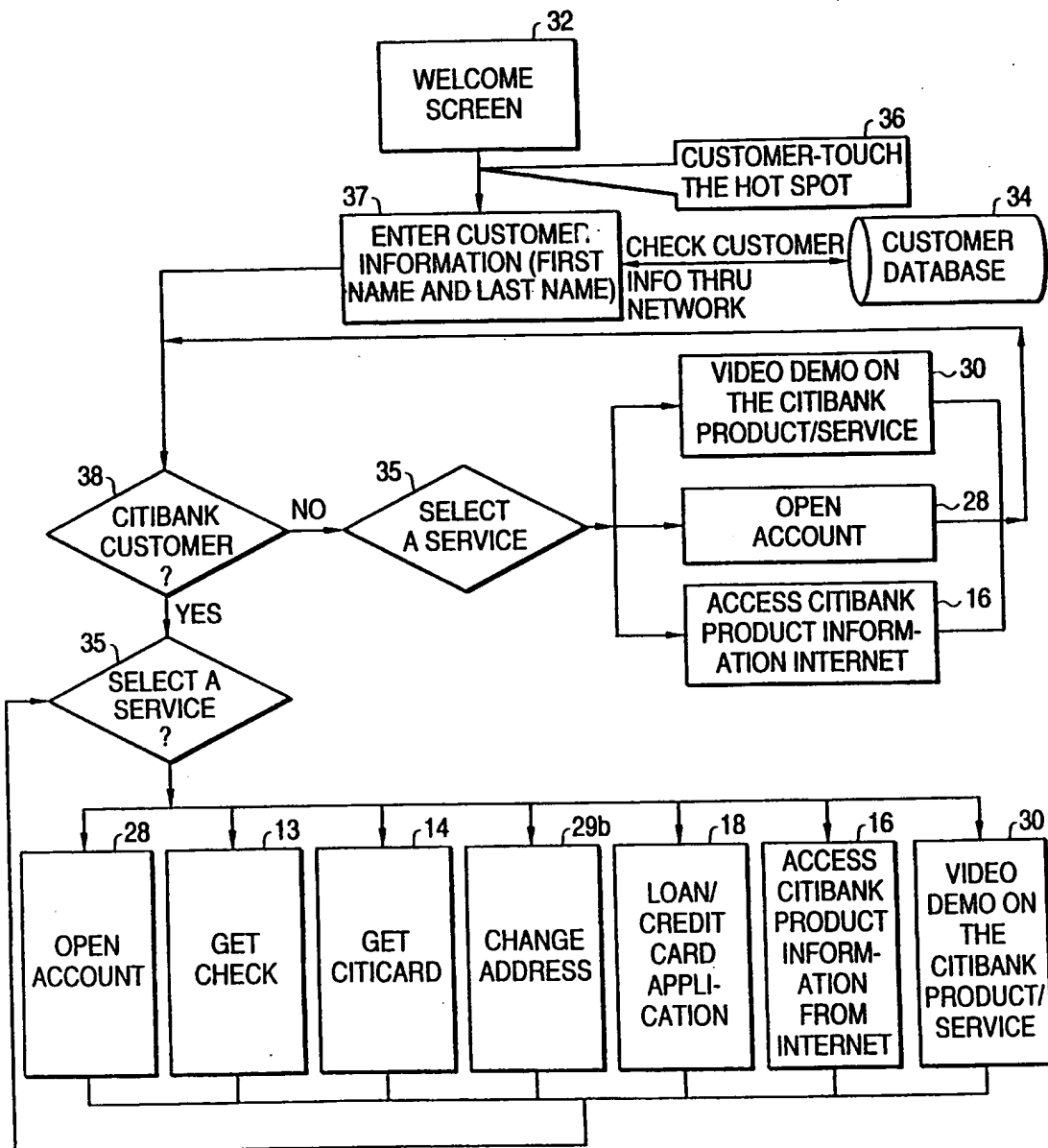
FIG. 4

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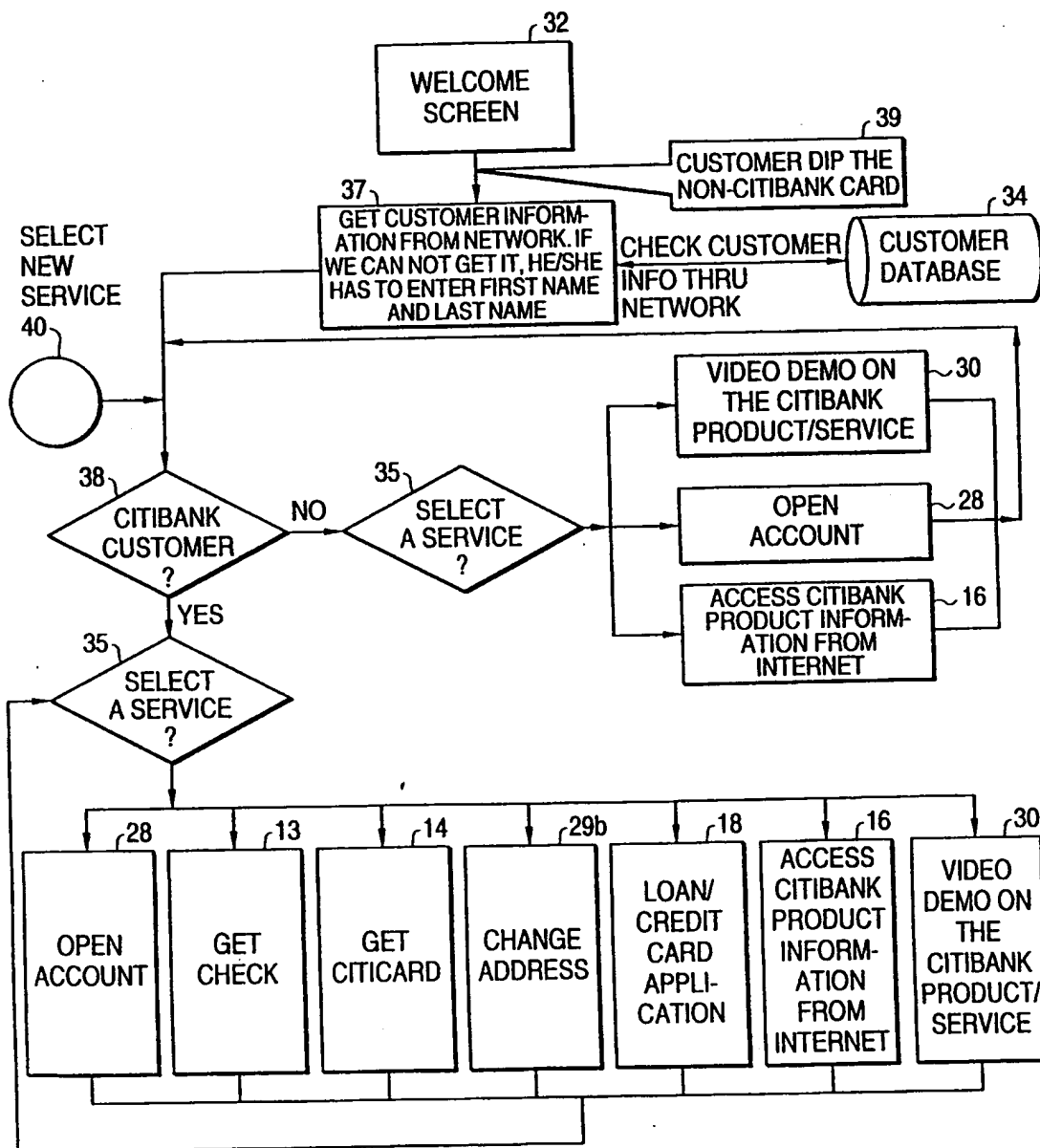
6/36

FIG. 6



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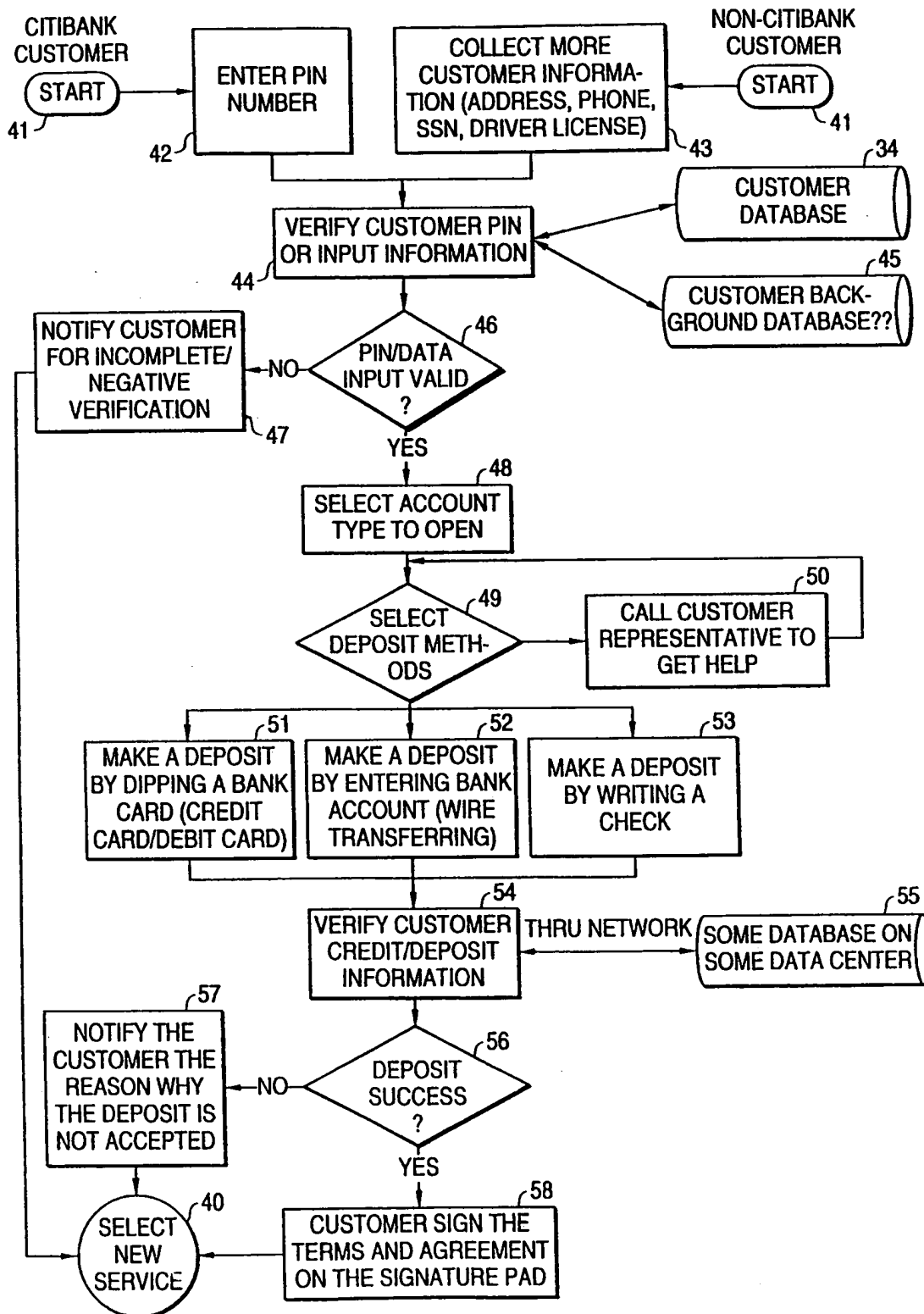
FIG. 7





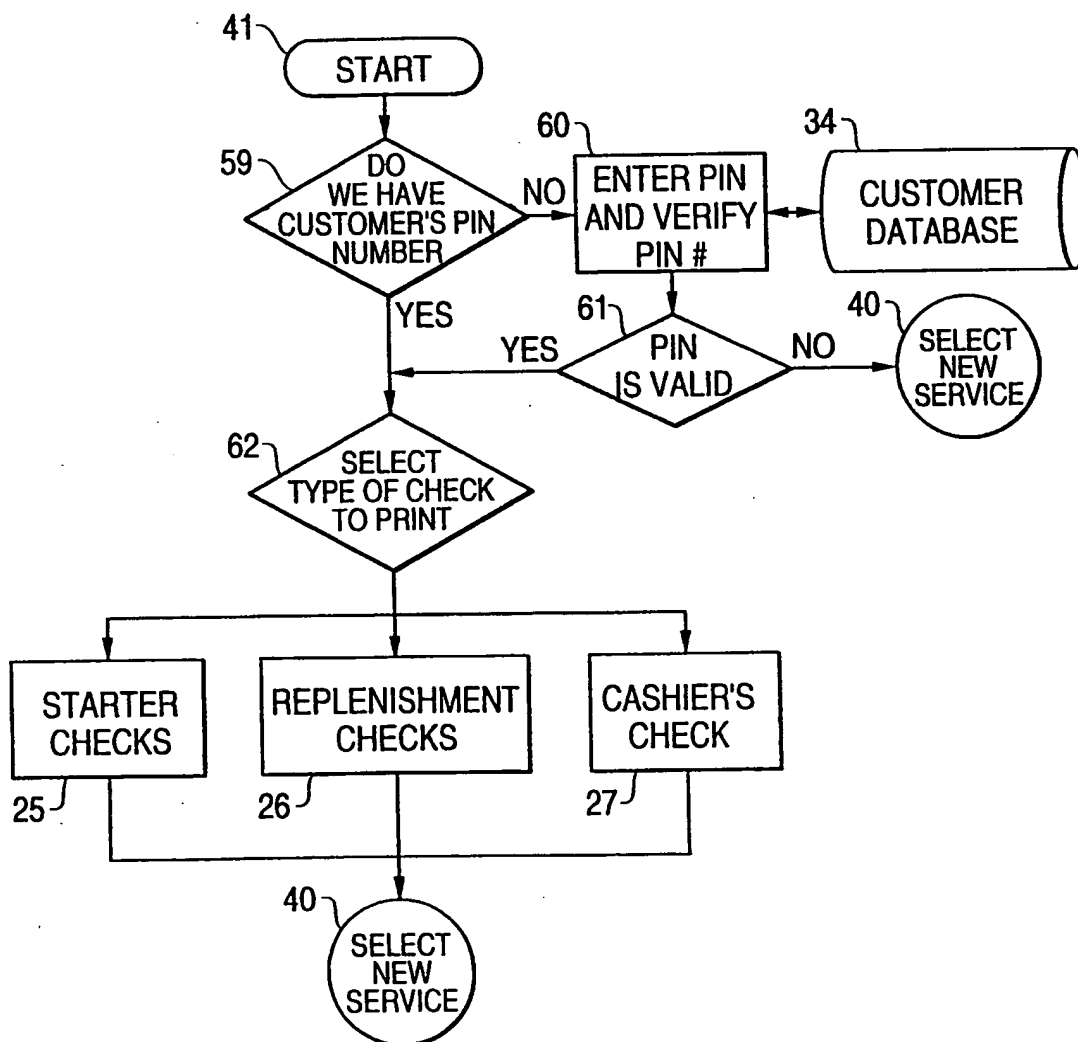
8/36

**FIG. 8**

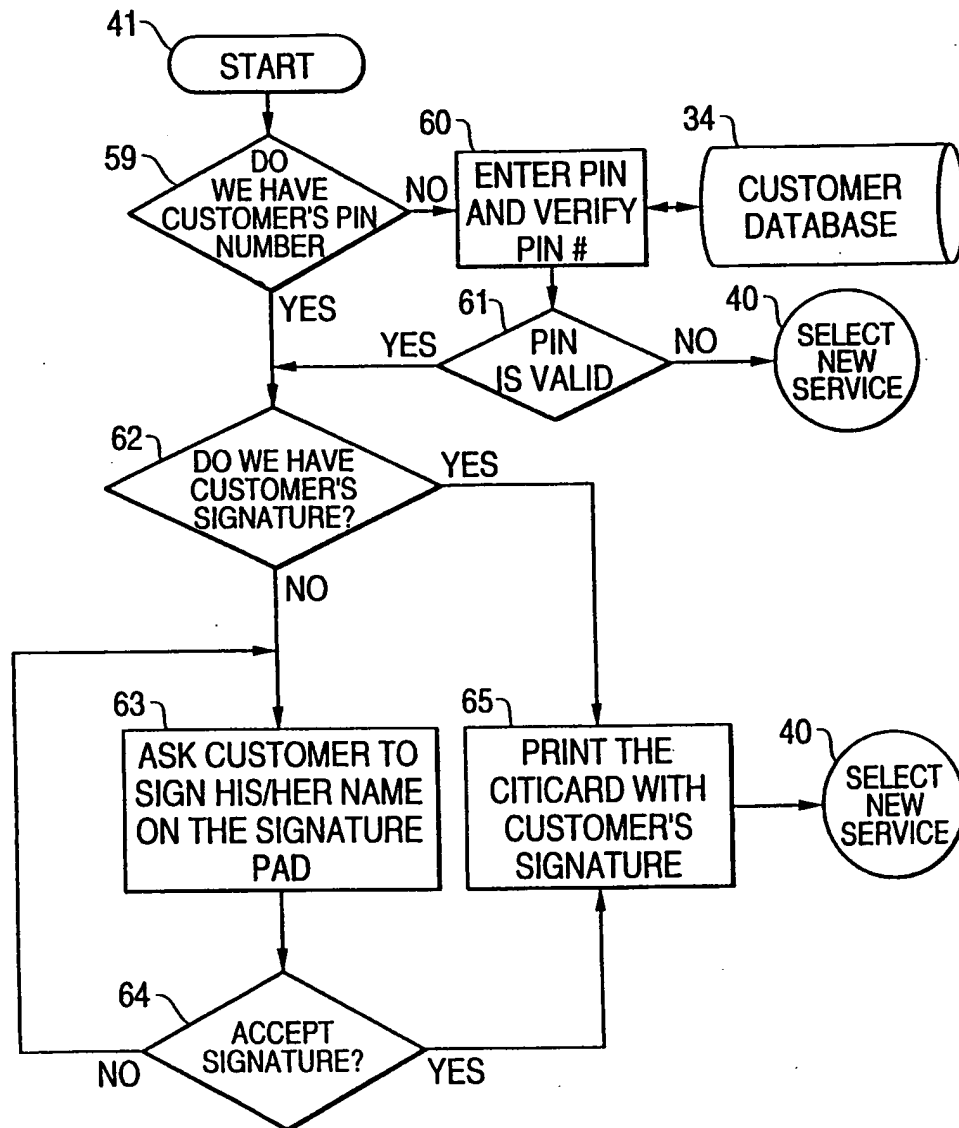


**SUBSTITUTE SHEET (RULE 26)**

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**FIG. 9**

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**FIG. 10**

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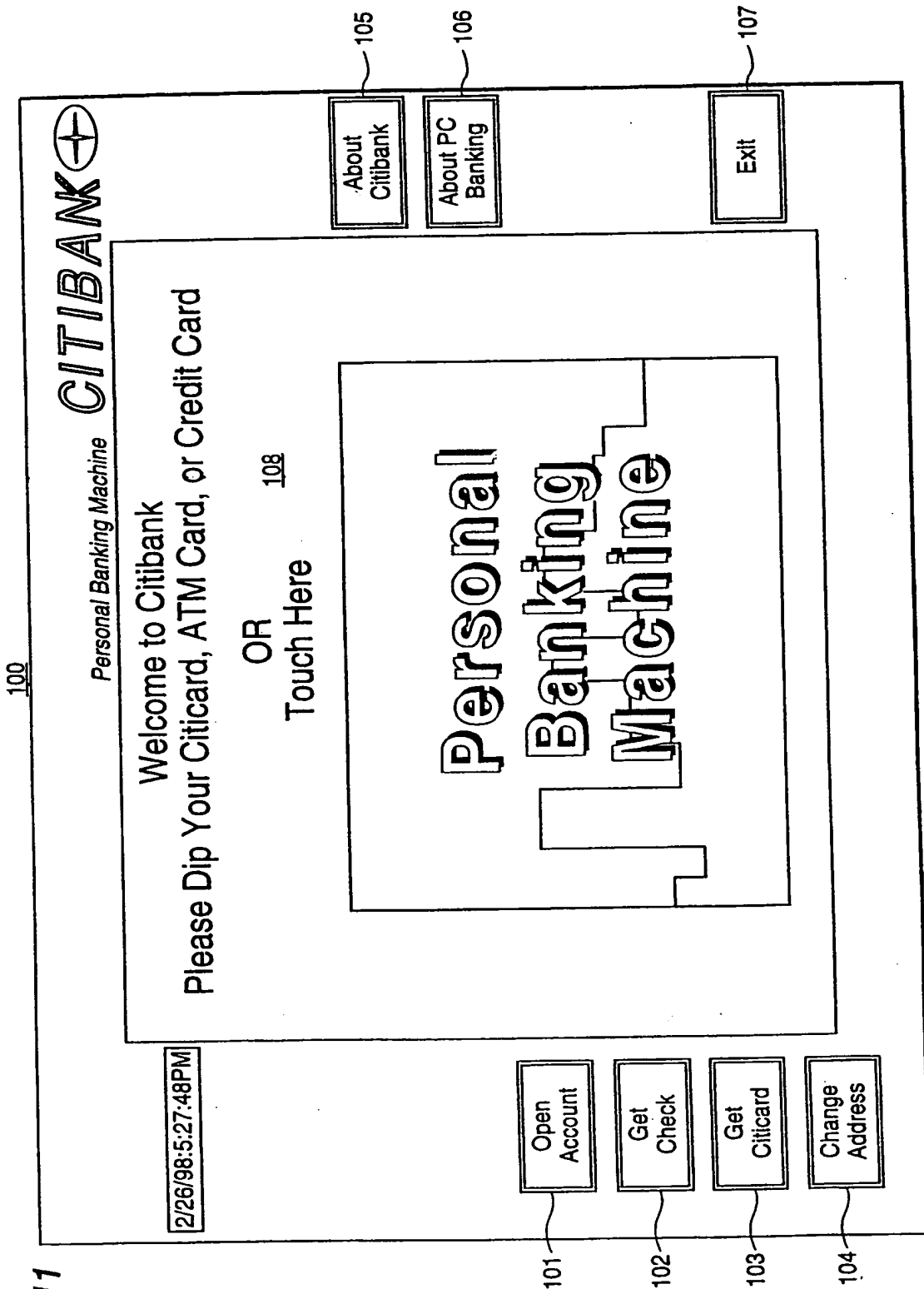


FIG. 11

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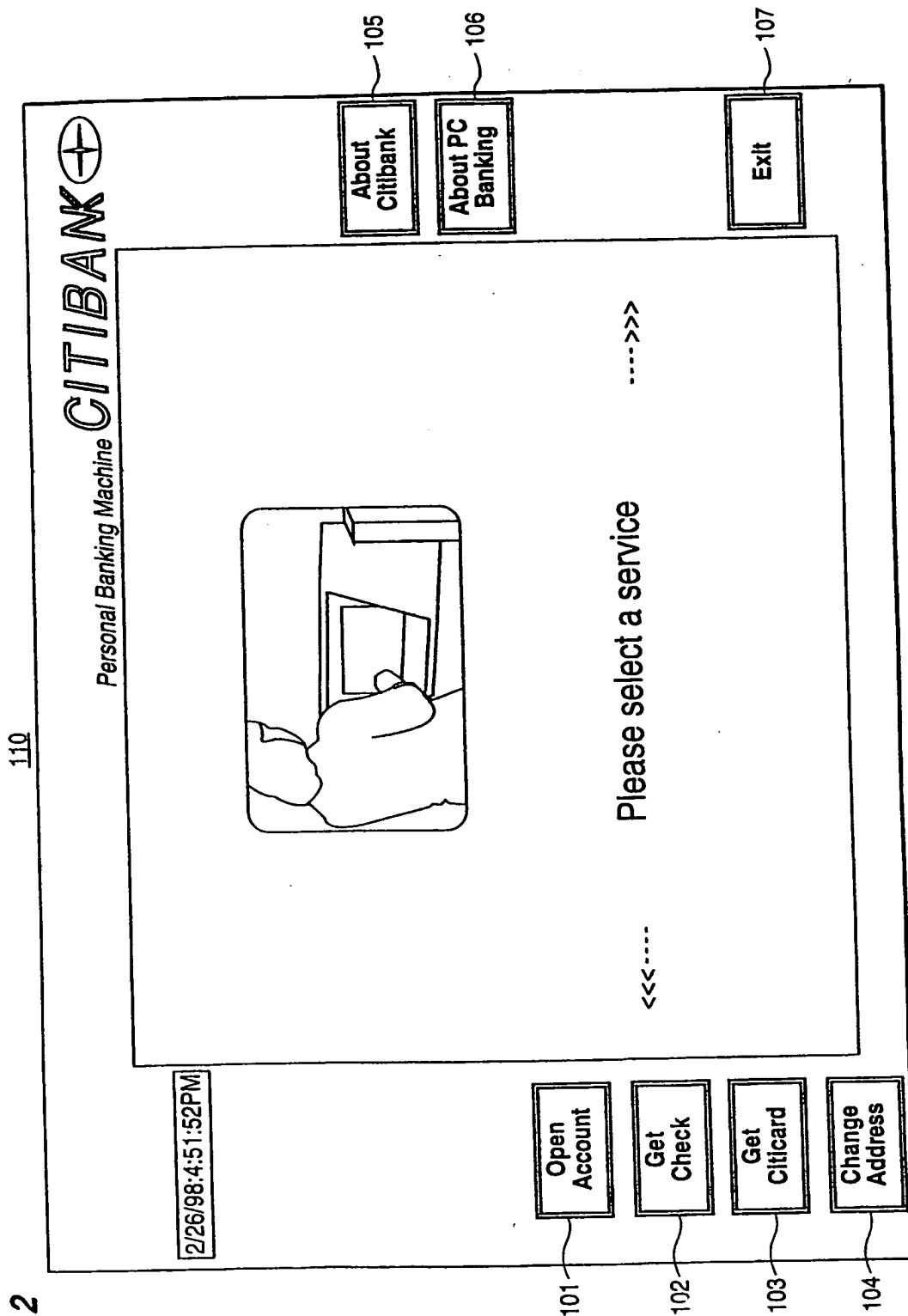
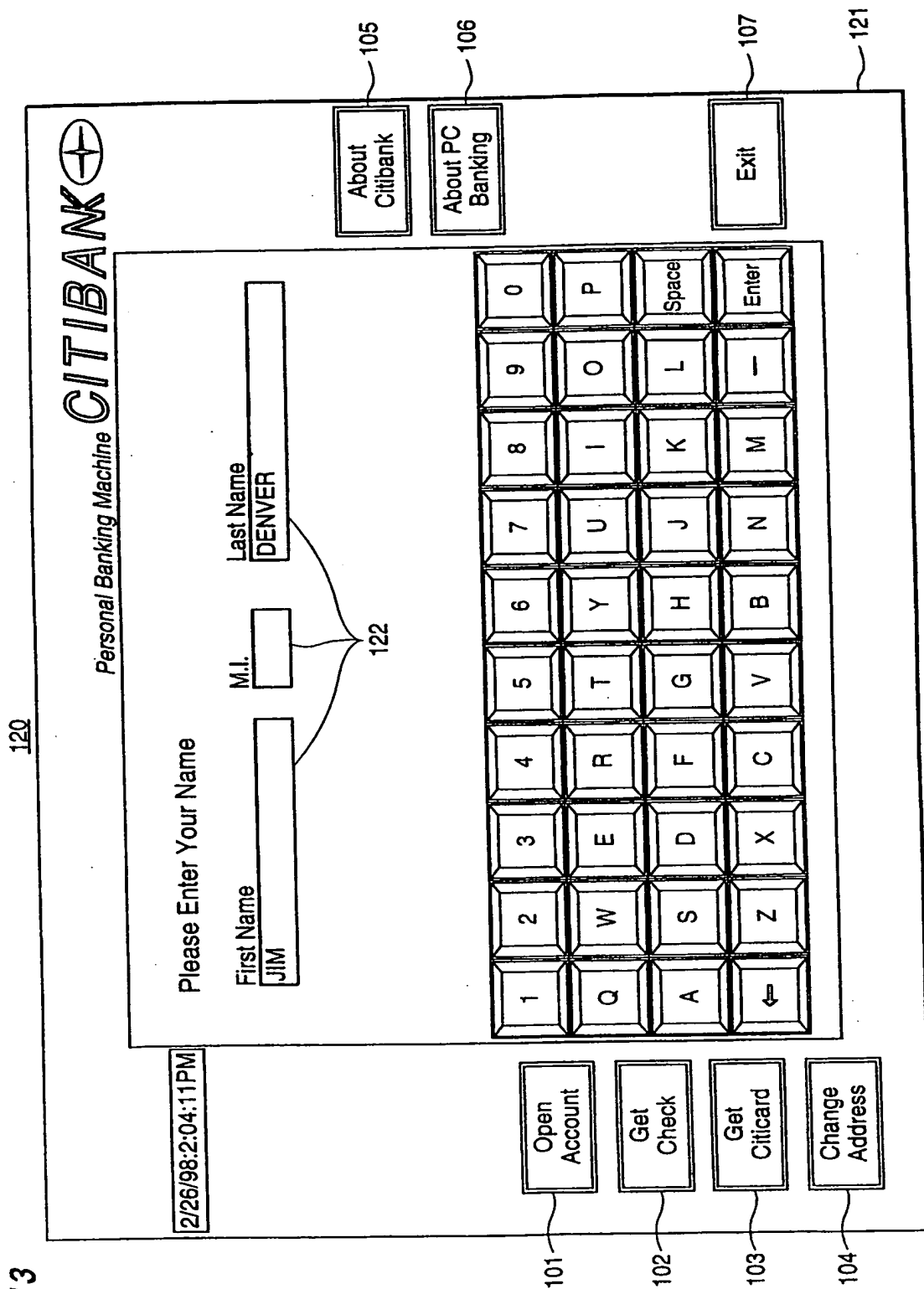


FIG. 12

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FIG. 13



14/36

FIG. 14A

130

Personal Banking Machine

# CITIBANK

105  
About Citibank

106  
About PC Banking

107  
Exit

121

**Open Account**

JIM, please fill in or verify the information so we can help you to open a new account

2/26/98:2:15:08PM

First Name  Last Name

Address

City  State  Zip

Business Phone  Home Phone  Driver License

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	Space
←	Z	X	C	V	B	N	M	-	Enter

131

Open Account

Get Check

Get Citicard

Change Address

15/36

FIG. 14B

140

2/27/98:2:12:44PM

**CITIBANK**

Personal Banking Machine

**Open Account**

JIM, please fill in or verify the information so we can help you to open a new account

First Name  Last Name

Address

City  State  Zip

Business Phone  Home Phone  Driver License

131

101 Open Account

102 Get Check

103 Get Citicard

104 Change Address

105 About Citibank

106 About PC Banking

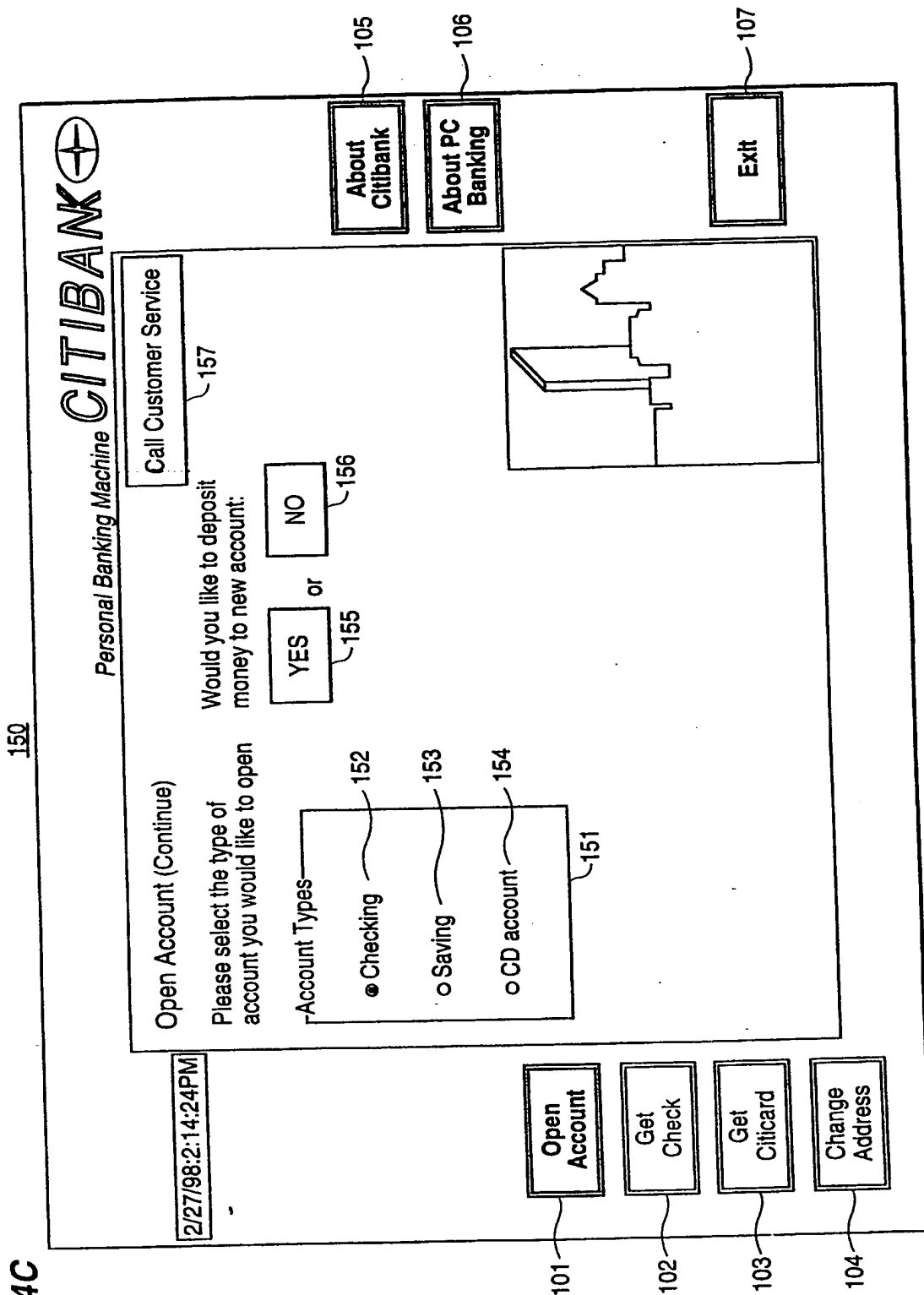
107 Exit

141 NEXT

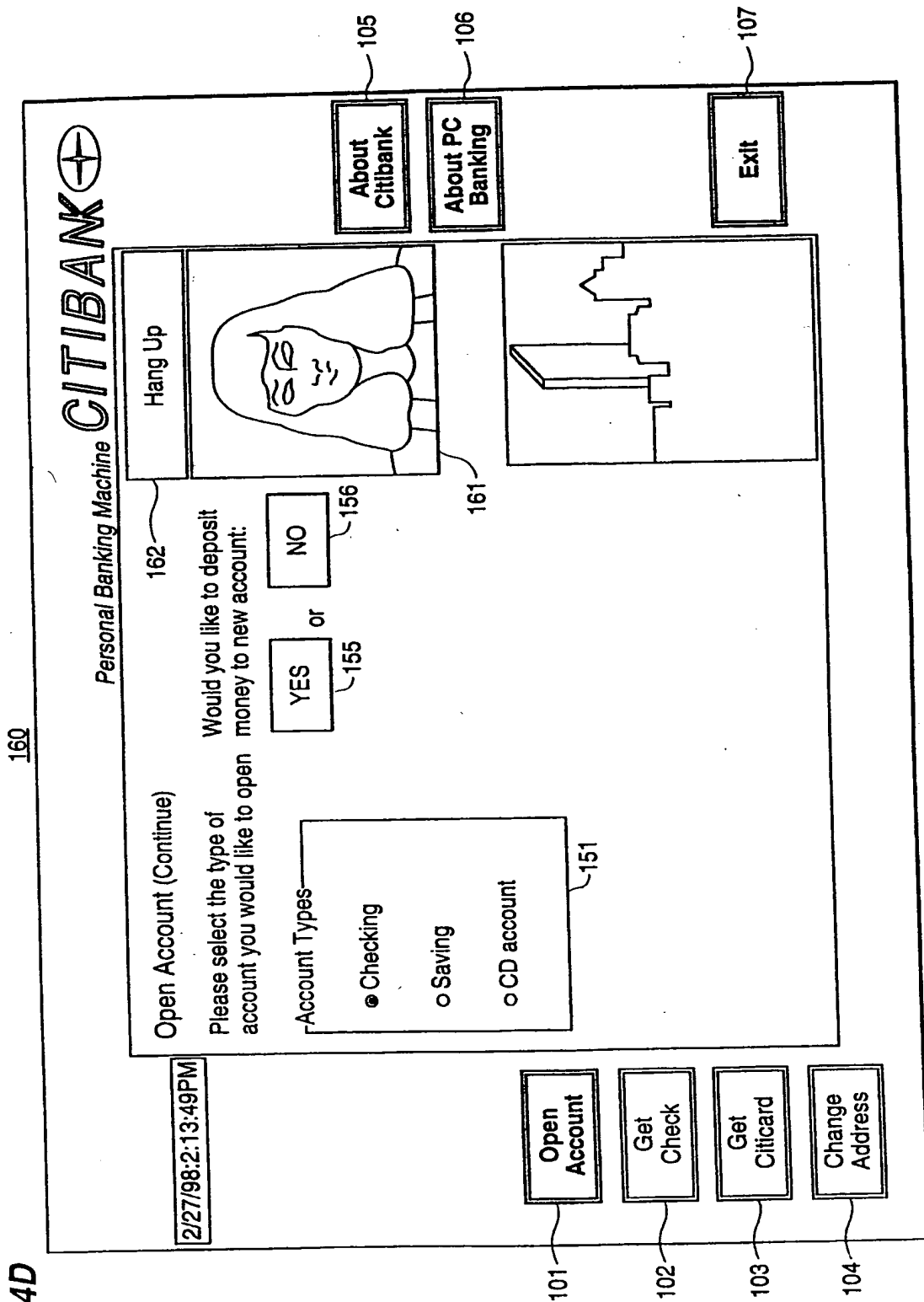
Press NEXT Button to continue



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18/36

FIG. 14E

170

2/26/98:3:10:18PM

Personal Banking Machine

# CITIBANK

Call Customer Service

**Open Account (Continue)**

Please select the type of account you would like to open

Account Types

☒ Checking

☐ Saving

☐ CD account

Would you like to deposit money to new account:

☒ YES

or

☐ NO

Transfer Money From:

☒ Bank Account

☐ Master Card

☐ Visa Card

Available Balance: 900

**Bank Account Info**

Bank Name:

Account #:

Amount:

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	Space
←	Z	X	C	V	B	N	M	-	Enter

**Open Account**

**Get Check**

**Get Citicard**

**Change Address**

**About Citibank**

**About PC Banking**

**Exit**

180

FIG. 14F

Personal Banking Machine

Branch: 12731 West Jefferson Blvd

Date Opened: 02-26-1998

Name: JIM DENVER

Mailing Address: 18847 E. Colima Rd.  
Rowland Heights, CA 91748

I have applied for a REGULAR CHECKING ACCOUNT

Account number: 999928963020

Available Balance: \$900

Money Transferred from BOA

Bank Account Number: 123456789

Under the penalties of perjury, I certify that the identification provided by me is correct. I acknowledge receiving CITIBANK, FSB's terms and conditions, including a description of fees and charges, for opening and maintaining the accounts and services selected.

Use Stylus Pen to sign your name on the Signature Pad

*Jim Denver*

Sign Again

Accept Signature

Open Account

Get Check

Get Citicard

Change Address

Exit

About PC Banking

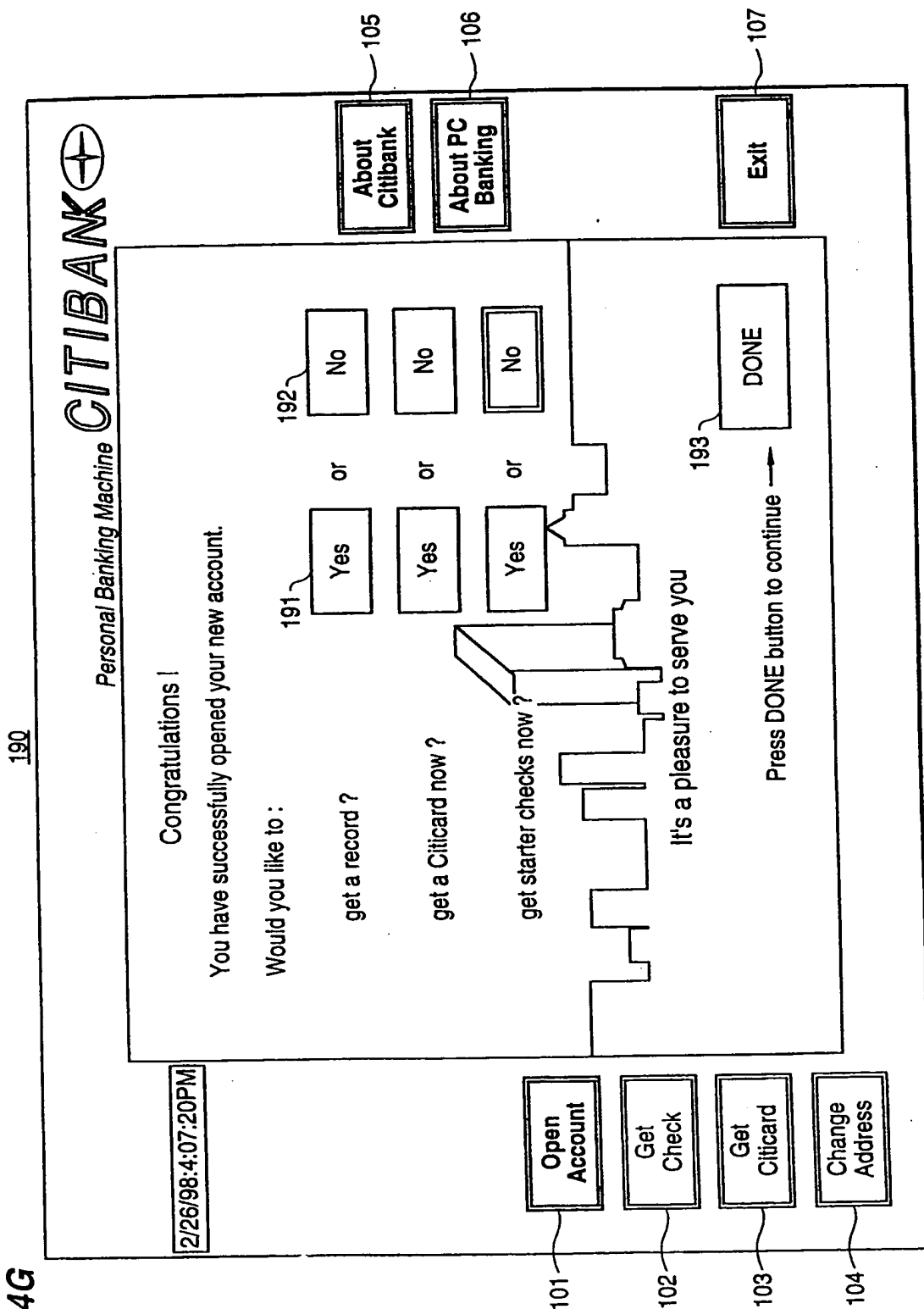
About Citibank

2/26/98:3:18:16PM

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20/36

FIG. 14G



21/36

FIG. 15A

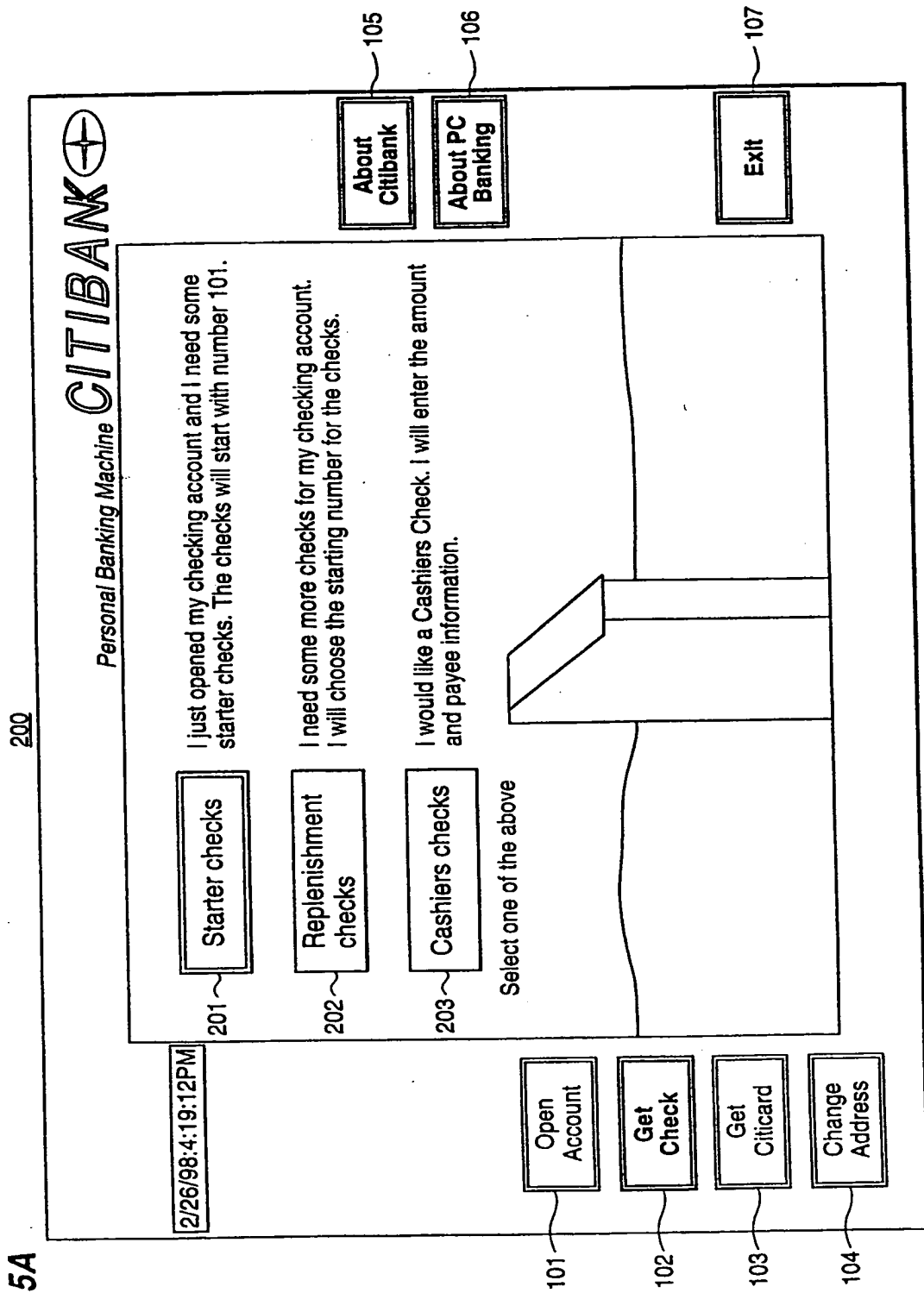


FIG. 15B

210

Personal Banking Machine

# CITIBANK

105 22/36 106

2/26/98:4:22:38PM

Starter Check 211

107

Date	101				
To					
For					
CHECK HERE IF TAX DEDUCTIBLE					
Balance					
Item Amt					
Balance					
Deposit					
Balance					

Jim Denver  
18847 E. Colima Rd.  
Rowland Heights, CA 91748

PAY \_\_\_\_\_ \$ \_\_\_\_\_

To The Order Of \_\_\_\_\_ Dollars

**CITICORP®** • NONNEGOTIABLE •  
3100 OCEANPARK Blvd  
Santa Monica, CA 90405  
⑆ 1 2 20006 7 1⑆ 152 ⑈ 05543 ⑈ 65456 ⑈

101 Open Account

102 Get Check

103 Get Citicard

104 Change Address

212 Print

213 Done

105 About Citibank

106 About PC Banking

107 Exit

FIG. 15C

220

Personal Banking Machine

**CITIBANK**

105 About Citibank

23/36 106 About PC Banking

107 Exit

2/27/98 2:15:45PM

Starter Check 211

Date  101

To

For

\*CHECK HERE IF TAX DEDUCTIBLE

Balance	
Item Amt	
Balance	
Deposit	
Balance	

Jim Denver 101

18847 E. Colima Rd. 19 16-07/1220

Rowland Heights, CA 91748

PAY  \$  Dollars

To The Order Of

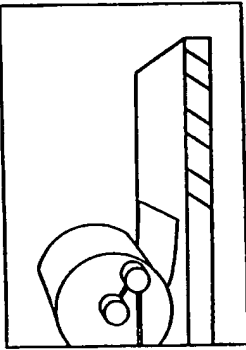
**CITICORP** • NONNEGOTIABLE •

SIGNATURE

3100 OCEANPARK Blvd

Santa Monica, CA 90405

⑆ 1 2 20006 7 1⑆ 152 ⑈ 05543 ⑈ 65456 ⑈



221

Done

One sheet of your Starter Checks is being printed. Please select "DONE" after you have received it.

Open Account

Get Check

Get Citicard

Change Address



FIG. 15D

230

Personal Banking Machine

# CITIBANK

24/36

2/27/98:2:18:30PM

**Replenishment Check**

Date	798
To	
For	
CHECK HERE IF TAX DEDUCTIBLE	
Balance	
Item Amt	
Balance	
Deposit	
Balance	

Jim Denver  
18847 E. Colima Rd.  
Rowland Heights, CA 91748

PAY \_\_\_\_\_ \$ \_\_\_\_\_

To The Order Of \_\_\_\_\_ Dollars

**CITICORP**® • NONNEGOTIABLE •  
3100 OCEAN PARK Blvd  
Santa Monica, CA 90405

⑆ 1 2 20006 7 1⑆ 152 ⑈ 05543 ⑈ 65456 ⑈

Start Checks with Number: 231

232 798

101 Open Account

102 Get Check

103 Get Citicard

104 Change Address

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	Space
←	Z	X	C	V	B	N	M	—	Enter

105 About Citibank

106 About PC Banking

107 Exit

121

FIG. 15E

240

2/27/98:4:10:13PM

Personal Banking Machine

# CITIBANK

Start Checks with Number: 231

232 798

**Replenishment Check**

Date	798
To	
For	

\*CHECK HERE IF TAX DEDUCTIBLE

Balance	Item Amt	Balance	Deposit

Jim Denver  
18847 E. Colima Rd.  
Rowland Heights, CA 91748

PAY \_\_\_\_\_ \$ \_\_\_\_\_

To The Order Of \_\_\_\_\_ Dollars

**CITICORP**®  
3100 OCEAN PARK Blvd  
Santa Monica, CA 90405

\*NONNEGOTIABLE •

SIGNATURE \_\_\_\_\_

⑆ 1 2 20006 7 1 ⑆ 152 ⑈ 05543 ⑈ 65456 ⑈

101 Open Account

102 Get Check

103 Get Citicard

104 Change Address

241 Edit

242 Print

243 Done

105 About Citibank

106 About PC Banking

107 Exit

FIG. 15F

250

Personal Banking Machine

# CITIBANK

105

26/36

106

2/27/98:2:19:26PM

**Replenishment Check**

Date 798

To 19

For 16-07/1220

Jlm Denver  
18847 E. Collina Rd.  
Rowland Heights, CA 91748

PAY \$

To The Order Of Dollars

**CITICORP**

3100 OCEAN PARK Blvd  
Santa Monica, CA 90405

1 2 20006 7 1 152 05543 65456

\*CHECK HERE IF TAX DEDUCTABLE

Balance	
Item Amt	
Balance	
Deposit	
Balance	

231

Start Checks with Number: 798

232

Open Account

Get Check

Get Citicard

Change Address

Done

One sheet of your Replenishment Checks is being printed. Please select "DONE" after you have received it.

101

102

103

104

107

About Citibank

About PC Banking

Exit

SUBSTITUTE SHEET (RULE 26)

FIG. 15G

260

2/26/98:4:30:54PM

Personal Banking Machine

CITIBANK

Name: Jim Denver

Date: February 26, 1998

Payee Name: TAN TROY

Address: 18847 E. Colima Rd.

Amount: 790

Address: 112 MAIN ST

City, State: Rowland Heights, CA 91748

City, State ZIP: LA CA 90008

16-2958  
1220

133-475381325

261

Date: February 26, 1998

Pay TAN TROY  
112 MAIN ST  
LA CA 90008

Drawer: CITIBANK FEDERAL SAVINGS BANK CALIFORNIA

To The Order Of  
\*\*\* \$790.00 \*\*\*  
Seven Hundred Ninety and 00/100 DOLLARS

BY \*\*\*Specimen\*\*\*  
AUTHORIZED SIGNATURE

BY \*\*\*Non-Negotiable\*\*\*  
AUTHORIZED SIGNATURE

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	Space
←	Z	X	C	V	B	N	M	-	Enter

Open Account

Get Check

Get Citicard

Change Address

About Citibank

About PC Banking

Exit

101

102

103

104

105

106

107

121

FIG. 15H

270

**CITIBANK**

Personal Banking Machine

Name: Jim Denver      Date: February 27, 1998      Payee Name: TAN TROY

Address: 18847 E. Colima Rd.      Amount: 790      Address: 112 MAIN ST

City, State: Rowland Heights, CA 91748      City, State ZIP: LA CA 90008

262

**CITIBANK**

261

16-2358      133-475381325  
1220

Date: February 27, 1998

DRAWER: CITIBANK FEDERAL SAVINGS BANK CALIFORNIA

Pay TAN TROY  
112 MAIN ST  
LA CA 90008

To The Order Of  
\*\*\* \$790.00 \*\*\*  
Seven Hundred Ninety and 00/100 DOLLARS

BY \*\*\*Specimen\*\*\*  
AUTHORIZED SIGNATURE  
BY \*\*\*Non-Negotiable\*\*\*  
AUTHORIZED SIGNATURE

PAYABLE THROUGH CITIBANK INTL. LOS ANGELES, CA  
FOR CITIBANK (NY STATE), BUFFALO NY 0220

⑈ 1 2 20 29587 ⑈ 8 ⑈ 0 58526 475381325

2/27/98:1:42:26PM

Open Account 101

Get Check 102

Get Citicard 103

Change Address 104

105      28/36      106

About Citibank      About PC Banking

107      121

Exit

Edit 271

Print 272

Done 273

262

FIG. 151

280

2/27/98:4:14:24PM

# CITIBANK

Personal Banking Machine

Name: Jim Denver  
Address: 18847 E. Colima Rd.  
City, State: Rowland Heights, CA 91748

Date: February 27, 1998  
Amount: 790

Payee Name: TAN TROY  
Address: 112 MAIN ST  
City, State ZIP: LA CA 90008

**CITIBANK**

Pay TAN TROY  
112 MAIN ST  
LA CA 90008

To The Order Of  
\*\*\* \$790.00 \*\*\*  
Seven Hundred Ninety and 00/100 DOLLARS

PAYABLE THROUGH CITIBANK INTL, LOS ANGELES, CA  
FOR CITIBANK (NY STATE), BUFFALO, NY 0220

16-2958 133-475381325  
1220

Date: February 27, 1998

BY \*\*\*Specimen\*\*\*  
AUTHORIZED SIGNATURE

BY \*\*\*Non-Negotiable\*\*\*  
AUTHORIZED SIGNATURE

1 2 20 29587 8 0 58526 475381325

261

262

Open Account

Get Check

Get Citicard

Change Address

101

102

103

104

105

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106

107

About Citibank

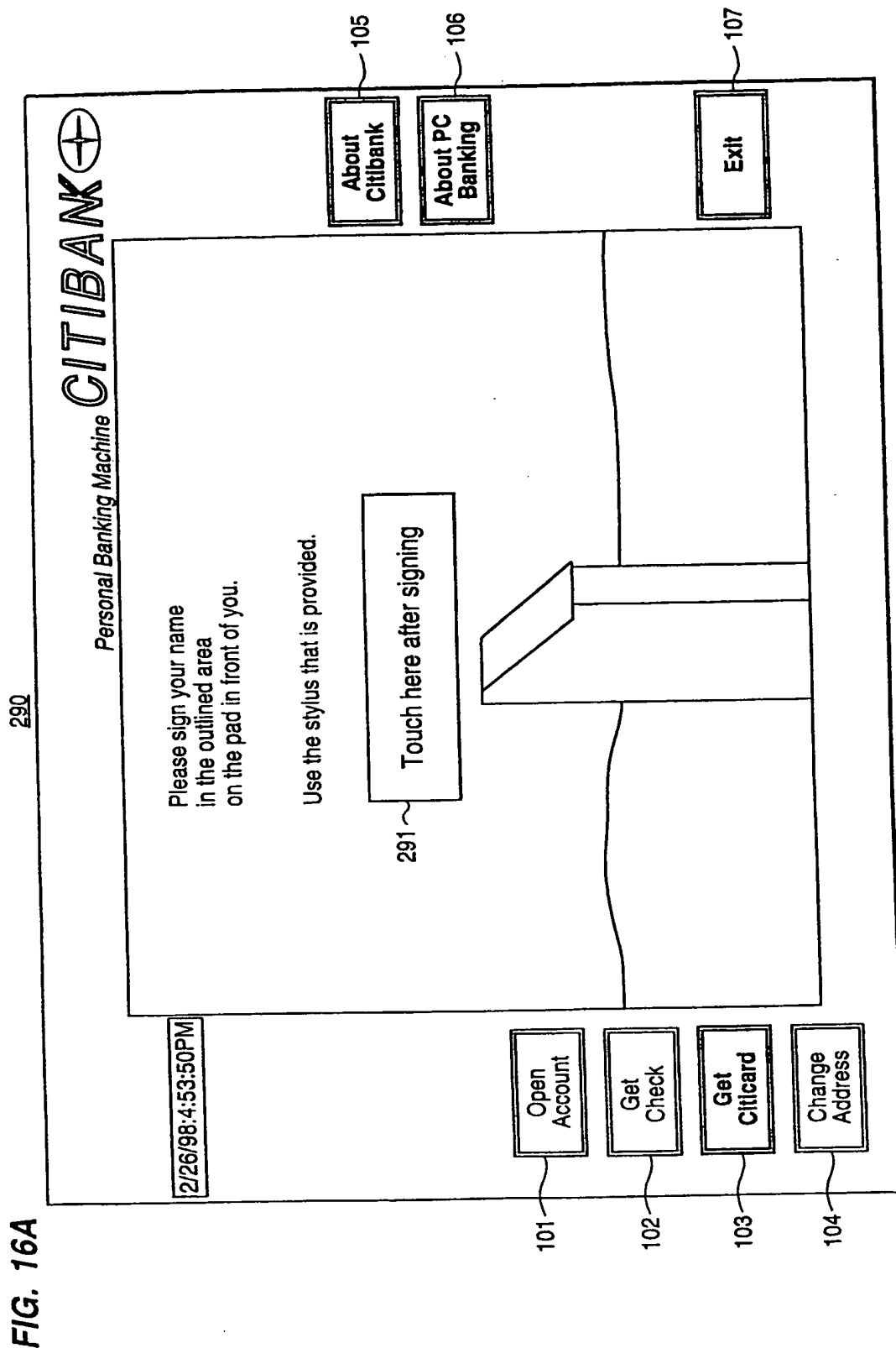
About PC Banking

Exit

Done

Your Cashiers Check is being printed.  
Please select "Done" after you have received it.

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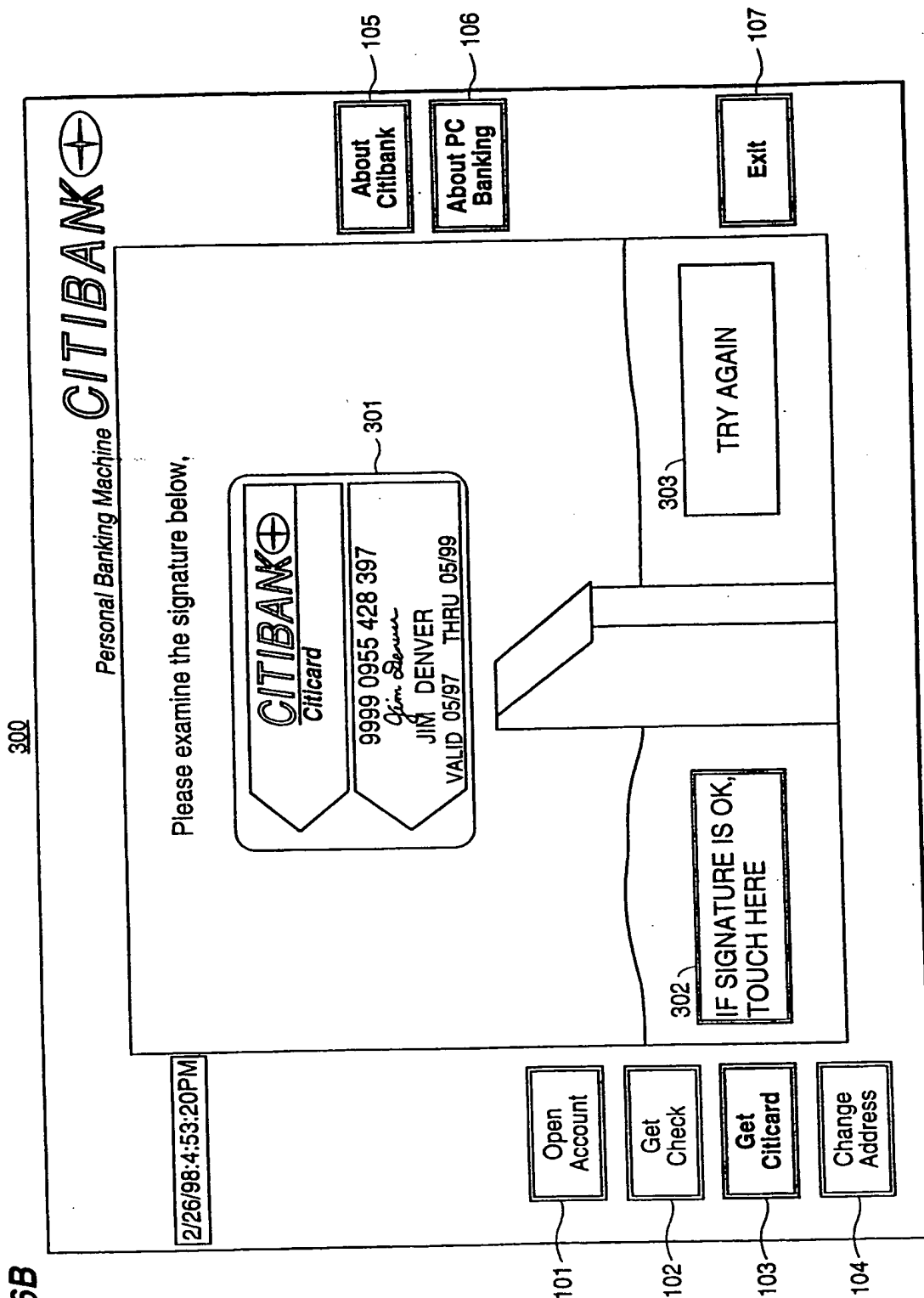
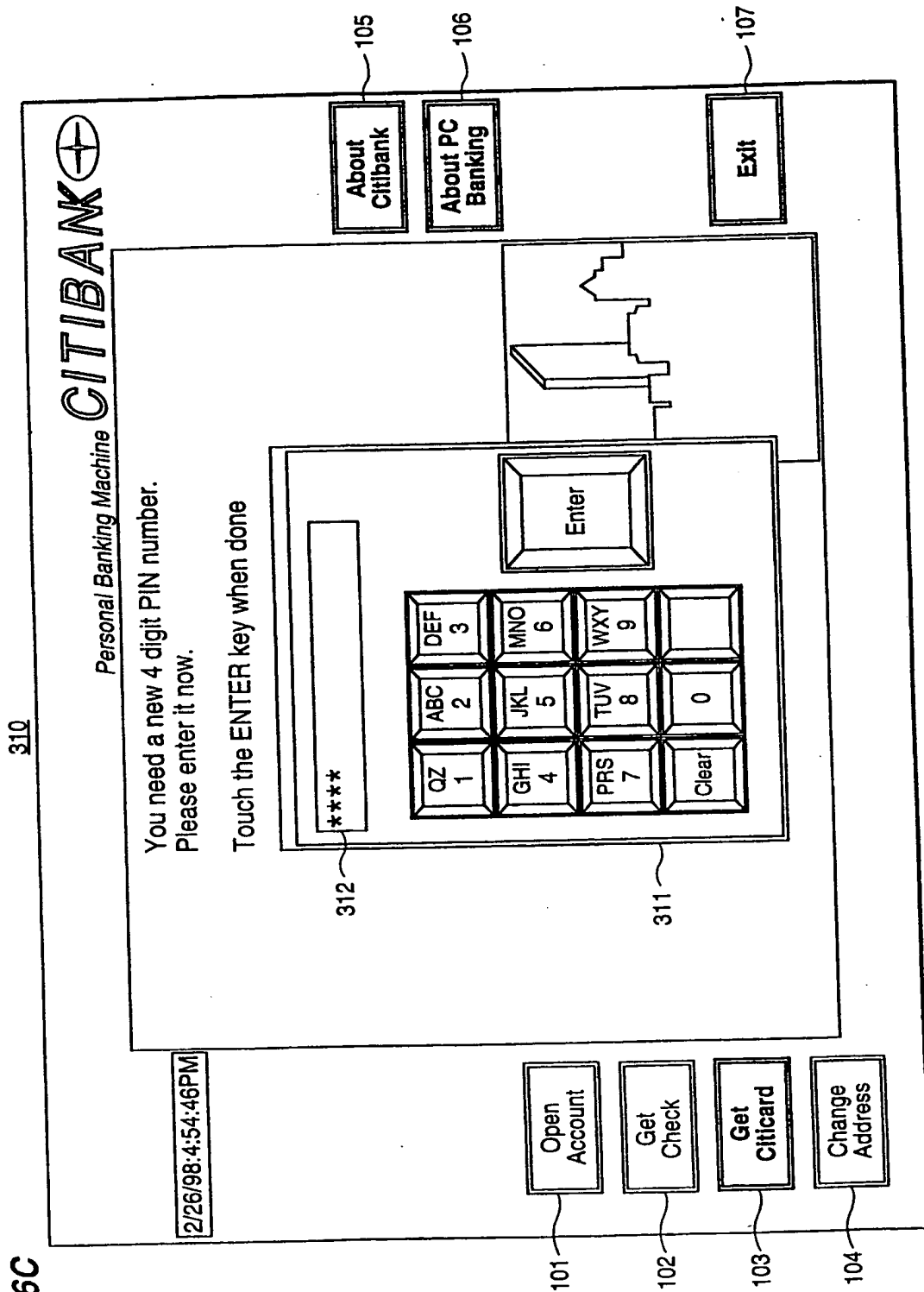


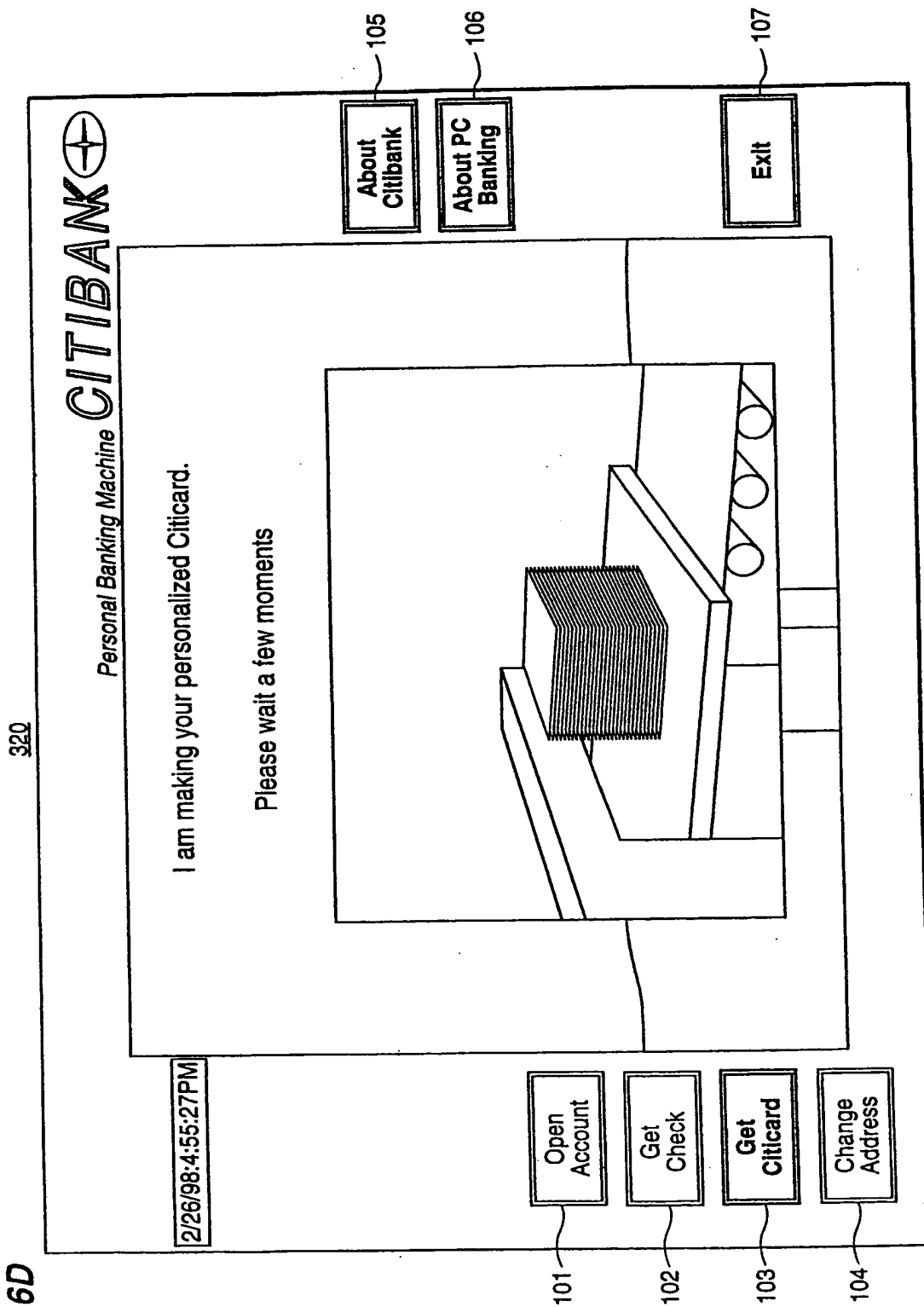


FIG. 16C



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FIG. 16D



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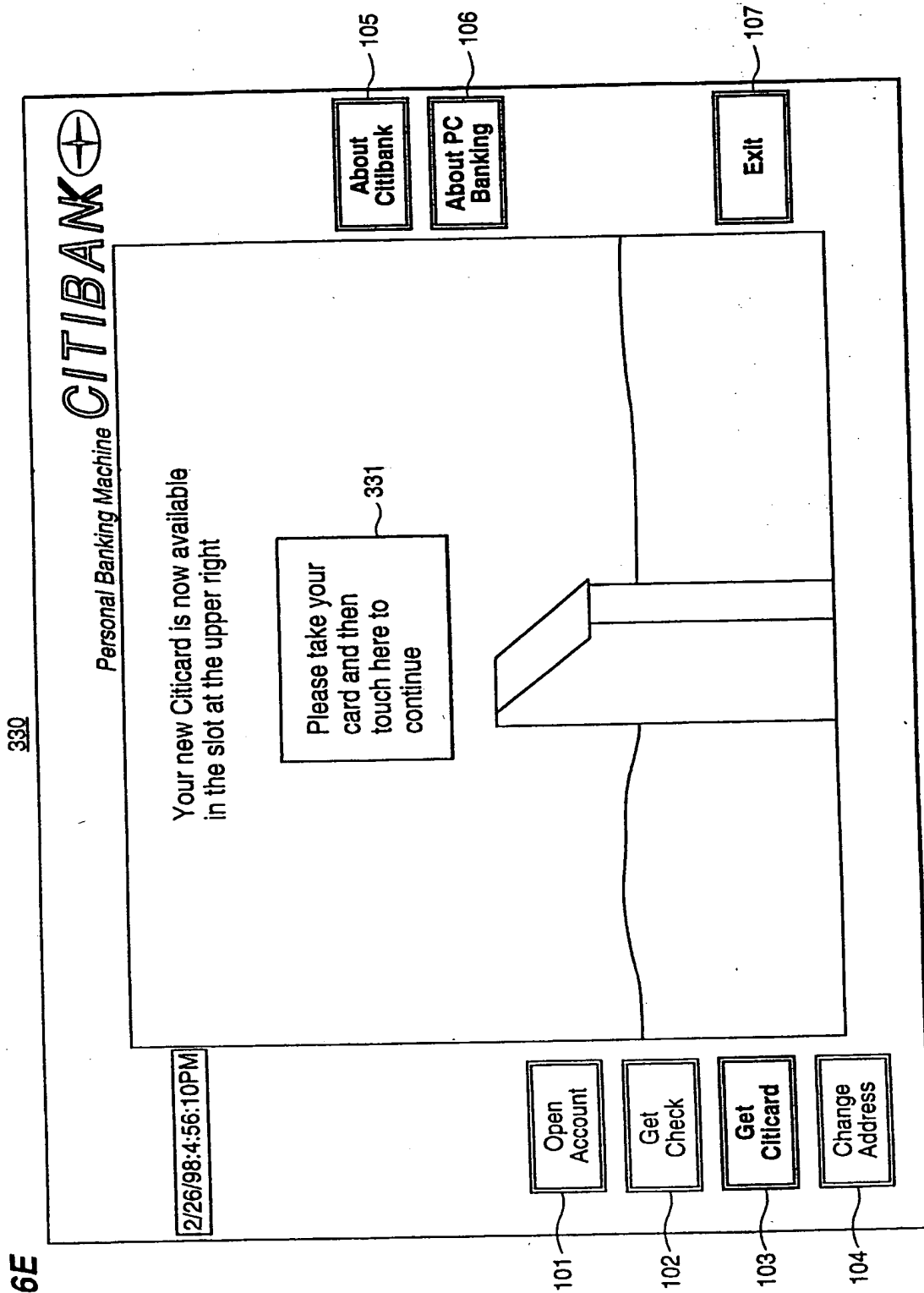
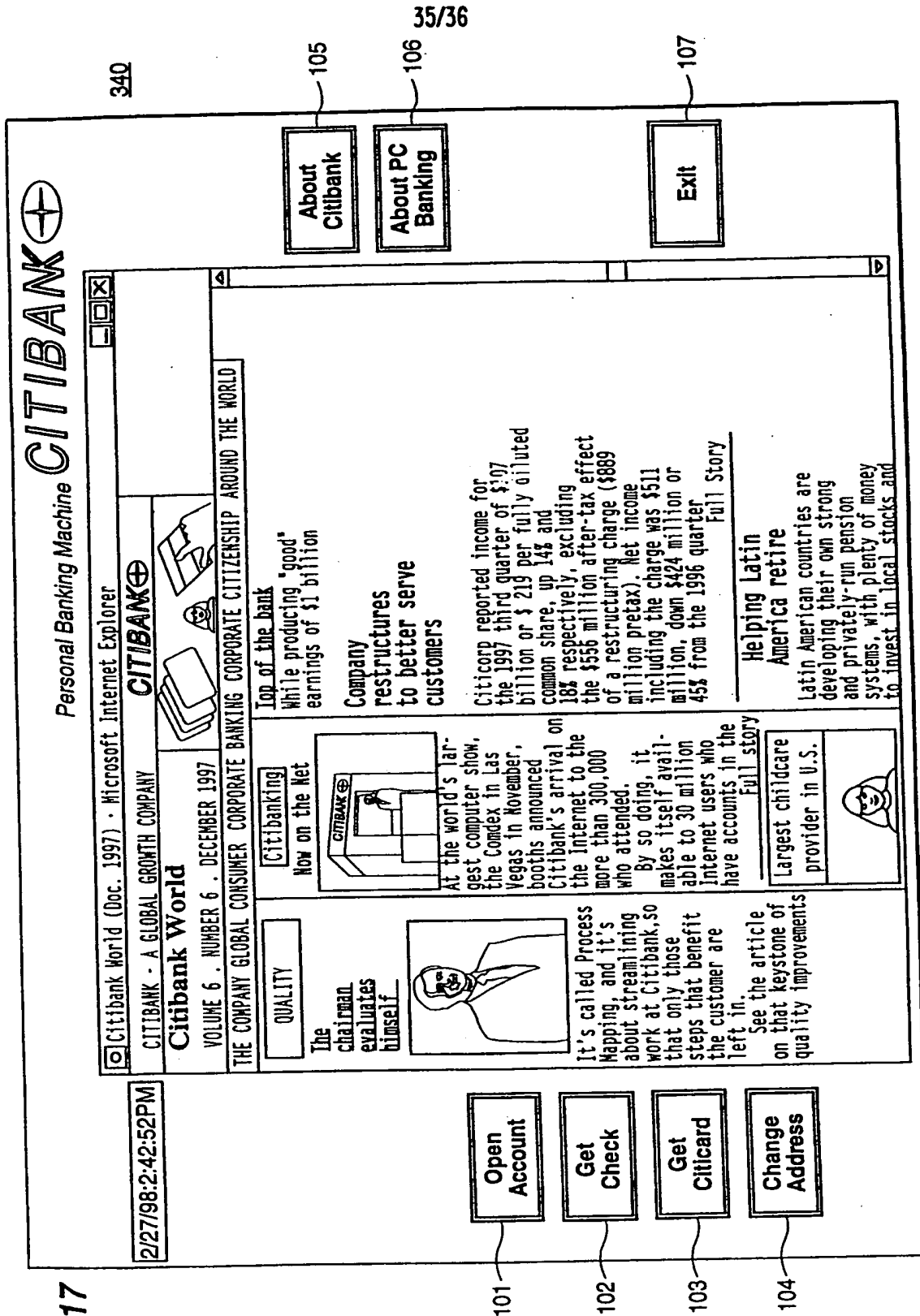


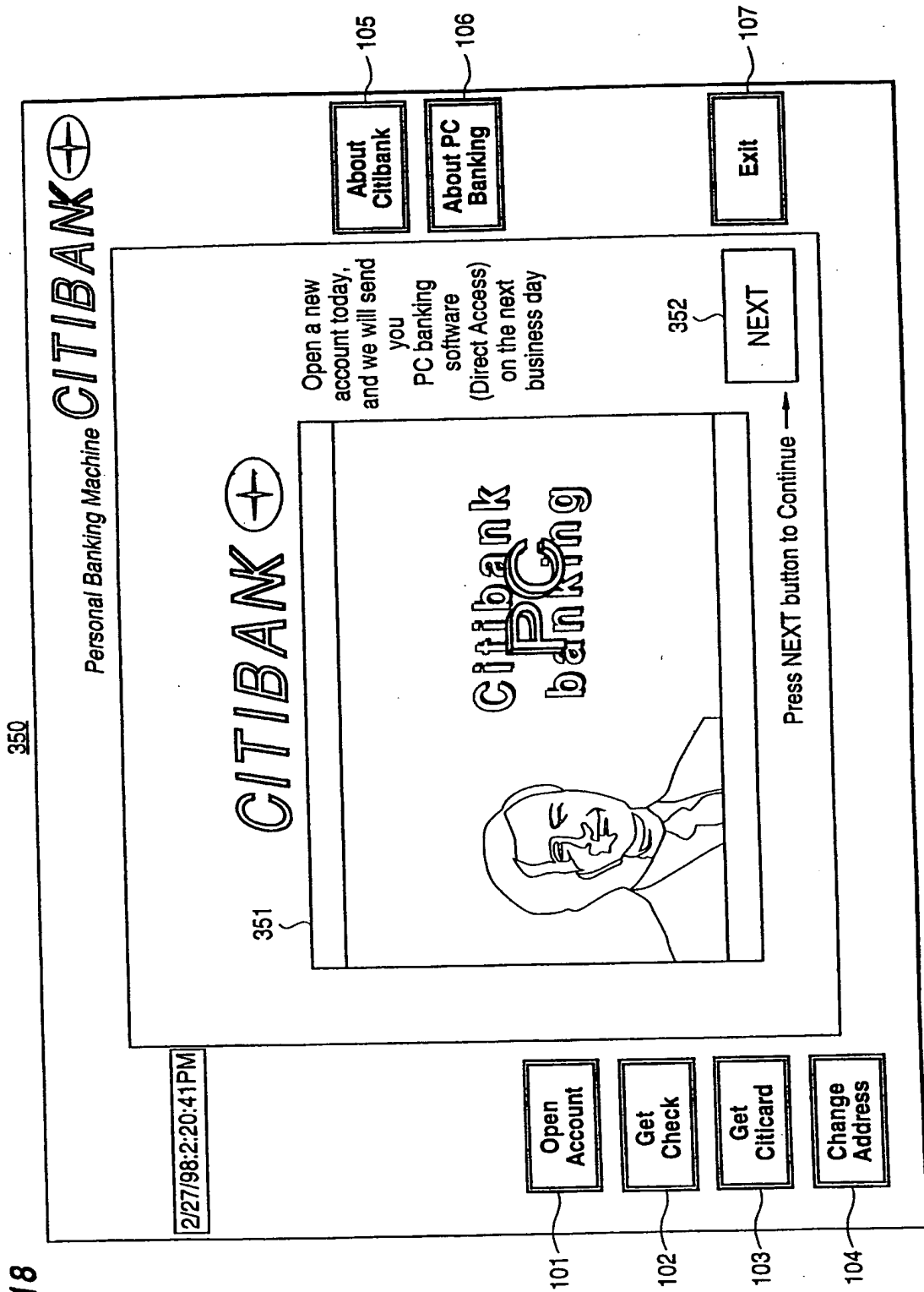
FIG. 16E

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FIG. 17



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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/16448

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 7/52

US CL : 705/35

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/35, 38, 39, 41

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5,794,230 A (Horadan et al.) 11 August 1998 (11.08.98), column 6, line 33 to column 8, line 55.	1-93
A, P	US 5,769,269 A (Peters) 23 JUNE 1998 (23.06.98), column 4, line 45 to column 8, line 30.	1-93
A, P	US 5,719,383 A (Forrest) 17 February 1998 (17.02.98), column 2, line 35 to column 3, line 6.	1-93
A, P	US 5,677,955 (Doggett et al.) 14 October 1997 (14.10.97) column 2, line 3 to column 6, line 45.	1-93



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

07 OCTOBER 1998

Date of mailing of the international search report

17 DEC 1998

Name and mailing address of the ISA/US  
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Box PCT  
Washington, D.C. 20231

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Telephone No. (703) 305-9779

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/16448

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,650,604 A (Marcous et al.) 22 July 1997 (22.07.97), column 3, line 40 to column 8, line 67.	1-93
A	US 5,455,407 A (Rosen) 03 October 1995 (03.10.95), column 7, line 50 to column 15, line 16.	1-93
A	US 5,220,501 A (Lawlor et al.) 15 June 1993 (15.06.93), column 11, line 15 to column 35, line 41.	1-31